JUNE 1960

INDUSTRIAL DEVELOPMENT AND MANUFACTURERS RECORD

THE INTERNATIONAL GUIDE TO INDUSTRIAL PLANNING AND EXPANSION

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313 NORTH FIRST ST.
ANN ARBOR, MICH. 6

President George Spatta of Clark Equipment Company discusses, beginning on page 14, the rapid growth of his firm and its prospects for future expansion.

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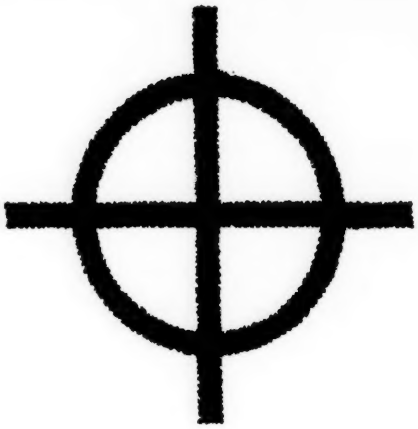
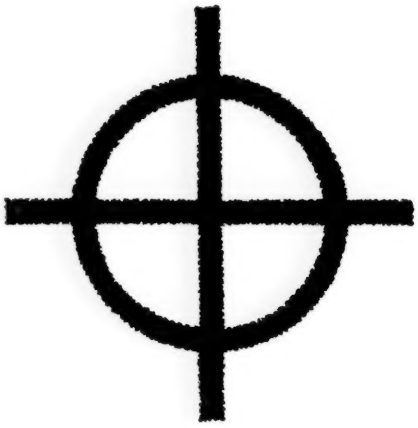
The South Bay Area of California 57
Gas Utilities 73

To a mapmaker... this indicates a survey corner





To a musician... this marks the point from which a passage is repeated

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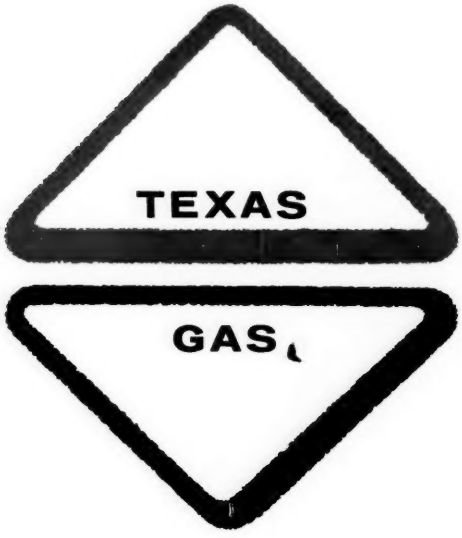

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INDUSTRIAL
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VOLUME 129 JUNE 1960 NUMBER 7

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BPA

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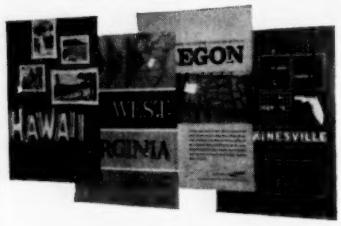

EDITORIAL SURVEYS

And Plant Location Reports

Since before the turn of the century MANUFACTURERS RECORD has issued special studies of specific cities and areas to assist the site-seeking industrial firm. Today, through the combined coverage of INDUSTRIAL DEVELOPMENT and MANUFACTURERS RECORD this tradition of leadership in this field is being extended and carried forward.

Before you go site-seeking, take advantage of background studies which have already been prepared for the areas listed below. Generally, reprints are available gratis.

COMPANY SURVEYS	
Western Pacific Railroad	Feb., 1960
AREA SURVEYS	
The Mohawk Valley	May, 1960
No. and Cen. California	May, 1960
Alma, Michigan	Apr., 1960
Thomasville, Ga.	Apr., 1960
St. Augustine, Fla.	Mar., 1960
Colorado	Mar., 1960
Gainesville, Fla.	Feb., 1960
West Virginia	Jan., 1960
Calgary	Jan., 1960
Hawaii	Dec., 1959
Kansas	Dec., 1959
St. Lawrence Valley	Nov., 1959
Oregon	Nov., 1959
Virginia	Oct., 1959
Staten Island	Oct., 1959
Oklahoma	Sept., 1959
Fresno County, Calif.	Sept., 1959
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Iowa	Apr., 1959
Puerto Rico	Mar., 1959
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Cleveland Corridor	Jan., 1959
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Rome and Floyd County, Ga.	Dec., 1958
Sacramento	Nov., 1958
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Orange County, Calif.	Sept., 1958
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Lower Va. Peninsula	July, 1958
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Florida Bay Area	June, 1958
Western Mississippi	May, 1958
Savannah, Ga. Area	May, 1958
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CHECK POINTS

INDUSTRIAL DEVELOPMENT MANUFACTURERS RECORD

Dr. John F. Victory

We can't help observing with sadness that John F. Victory will retire July 31. There probably won't be any headlines, but his is a story that would certainly make a fine piece for the "unforgettable character" series in Readers Digest.

Young John Victory went to work as a male typist about 1916 for a new Federal agency in Washington called the National Advisory Committee for Aeronautics. He was the very first employee of what today is the mammoth National Aeronautics and Space Administration, probably the most vital agency in our government. He rose to be Secretary of NACA and received many honors from the aviation world, among them the Wright Brothers Memorial Trophy and a Presidential Medal of Merit.

Your editor first bumped into Dr. Victory at about the time World War II started. His talents were such that he found us an apartment within a few hours — at a time when you were lucky to find one in six months. He was equally adept at slicing red tape to push priority research projects through the Washington maze. We have no doubt that John Victory's devoted paper-shuffling, telephoning, and button-holing for more than 50 busy years has helped substantially in getting those NASA satellites in orbit. Well done!

* * *

One of the encouraging signs of progress in elevating industrial development as a field of professional effort is that we find more and more men in high public offices taking a personal interest. Not too long ago, planned industrial promotion was an orphan child in most government offices. Industry expanded not **because** it was encouraged, but **in spite of** ignorance in high places.

Today, however, there are many areas in which industrial development is a matter of prime concern to political figures. Quite a few governors have campaigned on platforms of expanding development efforts. Several have made industrial growth their prime objective and have devoted a great amount of time and energy to this activity.

To give these men a well-deserved pat on the back, INDUSTRIAL DEVELOPMENT has created a special citation to be awarded to men in high public office who devote unusual personal attention to economic expansion programs. Recently, in Seattle, your editor presented a citation to Washington's Governor Rosselini for his missions to Alaska, Hawaii, and Eastern cities. And, in Raleigh, Editorial Advisory Board member Victor Roterus represented ID in making a similar presentation to North Carolina Governor Luther Hodges. Governor Hodges has been an outstanding leader in statewide industrial promotion and has ranged as far afield as Europe to bring back new enterprises.

Washington Governor Albert Rossellini (right) receives special ID citation from Editor H. M. Conway, Jr. (center), as Stanley Donogh, chairman of the Advisory Commission, looks on.

North Carolina Governor Luther H. Hodges, wearing the inevitable carnation, receives ID citation from Victor Roterus, chief, Area Development Division, U.S. Department of Commerce.

By the time you read this, your hard-working editor will have made a swing through the British Isles, picking up data on industrial development there. We're particularly anxious to see some of the industrial "estates" — the British counterparts of our industrial parks. Our visit will include London, Manchester, Glasgow, Belfast, Dublin, and other spots. Of course, we'll be giving you a full report in a later issue.

Incidentally, this gives us a chance to observe that development relations seem to be improving steadily between the great English-speaking nations. In a recent week we had conversations with representatives of Britain, Australia, and South Africa. All are very much interested in industrial development and have programs of interest to the U.S. executive.

L. J. N. Blyde, of the British-American Chamber of Commerce, told us about the British Exhibition set for the New York Coliseum June 10-26. From Australia, A. J. S. Day told us about special inducements offered in Western Australia and the beginning of planned industrial districts in the East. From Piet J. Nel, we got a picture of expanding development programs in South Africa. There are numerous regional planning groups and there is extensive research in area factors.

One of the more interesting cases was related to us by Count McCormick, development representative of Ireland. It had to do with a Midwest U.S. firm which makes an "expendable flower pot." Made of peat, the pot is used by nurseries which sell plants to the public. All the housewife has to do is plant the pot and forget it. Anyway, this firm made an international site survey and decided to build a plant in Ireland to serve the Southern California market! Shows how complex industrial development is getting to be.

Spokesmen from areas outside the United States (left to right): Day of Australia, Blyde of Great Britain, and Nel of South Africa.

—H.M.C.

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SIRS: We were very interested in a survey which you completed with Western Pacific Railroad, and are interested in finding out more about your magazine entitled INDUSTRIAL DEVELOPMENT and MANUFACTURERS RECORD.

Would it be possible for you to send us your subscription rates and also a back issue of your magazine to help us make a decision in this matter.

A. L. McPHERSON
Assistant to President
Gustin-Bacon Mfg. Co.
Kansas City, Missouri

► **Material requested has been furnished.**

SIRS: Please mail to us seven copies of your March issue INDUSTRIAL DEVELOPMENT — Volume 129.

I am anxious to have my salesmen read the article you have in that issue of "leasing . . ."

MARTIN M. JOHNSTON
Branch Manager
Addressograph-Multigraph Corp.
Green Bay, Wisconsin

► **Copies sent.**

SIRS: I read with considerable interest your editorial in the March 1960 issue of INDUSTRIAL DEVELOPMENT.

Being in the business of site selection, we see the lack of professional planning on the part of quasi-governmental agencies, industrial developers etc., and I subscribe to your principle of more specific educational opportunities . . ."

ELMER D. GATES, Manager
Defense Systems Dept.
General Electric Company
Syracuse, New York

SIRS: The Harvard Business School publishes a monthly periodical called The Executive: A Guide to Reading for Top Management. This magazine contains brief abstracts of books and periodical articles which we feel should be brought to the attention of business executives . . .

We would like to obtain permission to include abstracts of your publications in our service. In our March issue we may wish to include "The Soviet Challenge!" by Allen Dulles from your February 1960 issue. We would be particularly happy if you could grant us a blanket permission so that we will be free to go ahead with abstracts of any of your material, or if not, we would appreciate it if you could give us permission to include an abstract of this particular article.

SYLVIA P. FIELD
Associate Editor
THE EXECUTIVE
Boston, Massachusetts

► **Blanket permission granted.**

SIRS: Your periodical has crossed my desk from time to time over the past several months. The March, 1960 edition containing your article on the professional aspect of industrial development was so interesting and well-written that I was compelled to scrutinize every article.

May I compliment you on your fine publication and may I wish you continued success in your efforts to elevate the business of industrial development to the professional status it deserves.

WILLIAM P. COWHEY
Industrial Department
Arthur Rubloff & Company
Chicago, Illinois

LETTERS

SIRS: This office would appreciate being granted permission to make a limited number of copies of the articles entitled "Facts Behind The Weather Index" by Earl C. Thom, reprinted from the September, 1959 issue of INDUSTRIAL DEVELOPMENT. . .

To elimi..ate the necessity for separate requests for permission . . . it is proposed that the Corps of Engineers be granted blanket permission to reproduce selected articles appearing in your publication. . .

It is believed that approval of the request for permission to reproduce selected articles from your publication . . . will be of assistance to the Corps of Engineers in carrying out its mission.

WILLIAM R. ORLANDI
Deputy General Counsel
Corps of Engineers
Washington, D. C.

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SIRS: Recently it was my good fortune to read in your magazine INDUSTRIAL DEVELOPMENT the article "West Virginia Has New Impetus for Growth" by Jouett Davenport, Jr., in the January 1960 issue. I am using this material for reference in a forth-coming conference. Is there a chance that you could send me a complimentary copy of this particular issue of INDUTRIAL DEVELOPMENT?

May I personally congratulate Mr. Davenport on this fine piece of work. I have recommended to Governor Underwood that the article be reprinted for wide distribution.

CARL R. KEY
Executive Secretary
West Virginia Council of Churches
Charleston, West Virginia

SIRS: I am very much interested in your magazine, INDUSTRIAL DEVELOPMENT, especially in the January issue the article that you published on West Virginia. Therefore, I would like for you to forward me four copies of the January issue and enter my name for one year's subscription to your magazine . . .

AUSTIN R. KENNEDY
Vice President
First Mortgage Corp.
Huntington, West Virginia

SIRS: My copy of the January INDUSTRIAL DEVELOPMENT issue has appeared on my desk. You have honored me by associating my work with that of two outstanding women. I have known Dorothy Muncy well and have respected her for a number of years. Mrs. Anderson is a stranger to me but her accomplishments are none the less impressive. A "working gal" seldom expects this kind of recognition and I appreciate it . . .

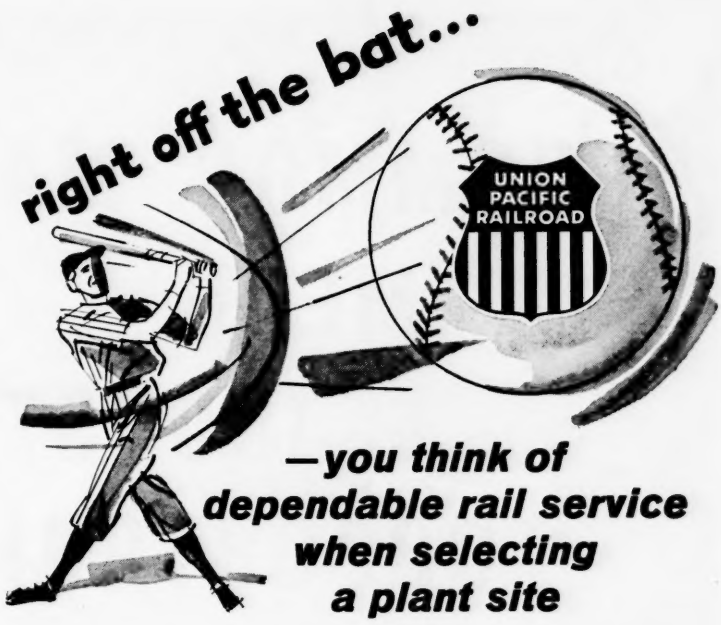
ROSEMARY MARTIN, Manager
Industrial Department
Columbus Area Chamber of Commerce
Columbus, Ohio

SIRS: We are quite interested in a reprint noted in the American Society of Planning Officials Newsletter of March, 1960 from the editorial column, "In Our Opinion" of the May, 1959 issue of INDUSTRIAL DEVELOPMENT.

We would like permission to reprint this article for distribution to local realtors, developers, etc.

HARMON T. MERWIN
Director-Secretary
Franklin County Regional Planning Commission
Columbus, Ohio

► **Permission granted.**



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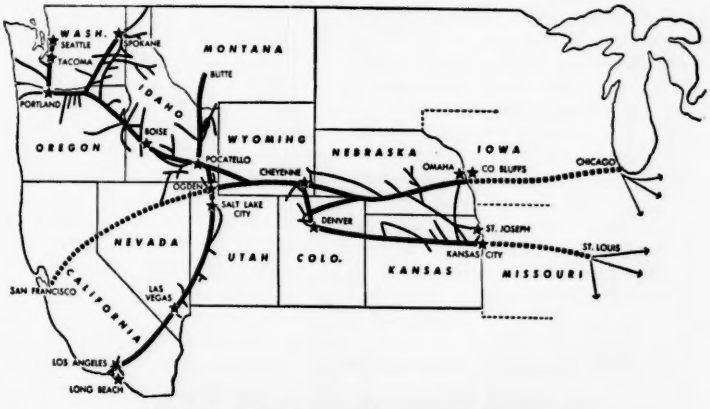

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COMMON MARKETS MEAN INDUSTRIAL OPPORTUNITIES

The grouping together of relatively small trade areas into larger units presents American manufacturers with new opportunities to enter foreign markets. Whereas no one of the countries would suffice to support a branch plant, a common market area made up of several countries might well justify the planning and expense necessary in setting up an overseas operation.

By Ralph A. Homan

Second in importance only to Peace in the World — which now means survival of this civilization, is the world's economic pattern and progress. The maintenance of a high state of economy in the Western free world is absolutely essential to the continued operation of free institutions with resultant liberty in the lives of men and women here and elsewhere.

We cannot support our defense posture — we cannot contribute to the welfare of mankind without the maintenance of a sound domestic economy. We cannot have a sound domestic economy without a high and increasingly higher level of world trade.

The importance of world trade to us exceeds the staggering amounts of $17.4 billion and $15.2 billion, the value of our exports (except "special category exports") and imports, respectively, in 1959. Its importance is more nearly brought home by the fact that some 9 percent of our movable goods are exported and the estimate that over four million American workers, or 6 to 7 percent of our labor force, gain their livelihood from foreign trade.

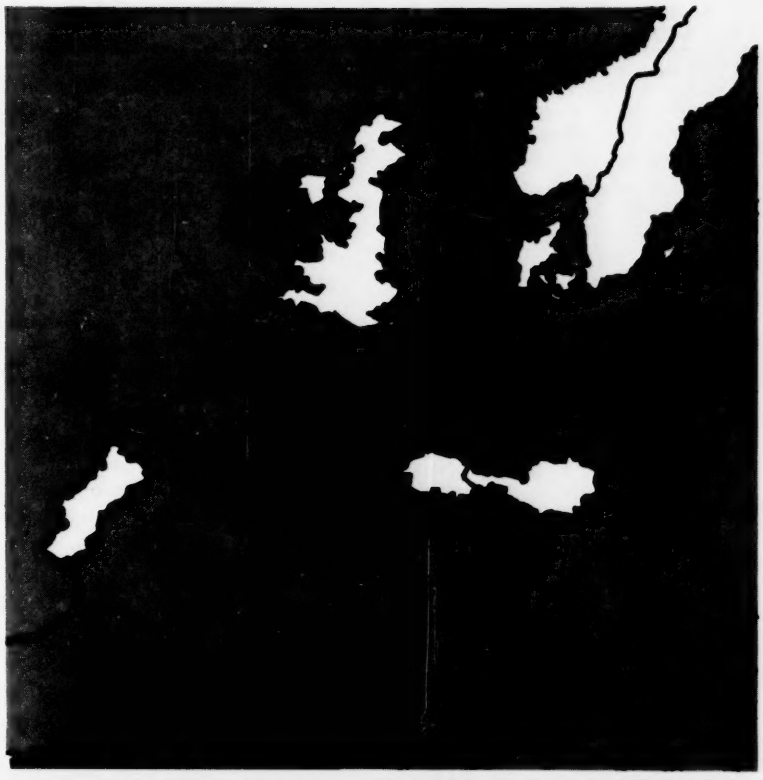
Exports take up one-fifth of our output of trucks, one-third that of civilian aircraft, 22 percent of our machine tool production, 31 percent of construction and mining equipment output, two-fifths of tracklaying tractor production, and up to one-half of our cotton and two-fifths of our wheat, as well as one-fourth of our fats and oils output.

We import nearly half of our wool requirements, three-fourths of our newsprint, one-sixth of our crude petroleum, almost one-fourth of our iron ore, one-third of our copper, the great bulk of our requirements for tin, nickel, aluminum (including bauxite), manganese, crude antimony, and cobalt; and all of our requirements for natural rubber, diamonds, coffee, and some tropical fruits.

Trade with Europe

Perhaps of greatest immediate importance to United States trade is the development in Western Europe of large trading areas, and especially the establishment of the Common Market on January 1, 1958.

The Common Market treaty, which encompasses France, the Federal Republic of Germany, Italy, Belgium, the Netherlands, and Luxemburg, has as its objective abolition of duties and quotas among the member states, the establishment of a common tariff on imports from third countries and of a common commercial policy; the free movement of persons, capital and services among the member states; the coordination of economic policy; the harmonization of laws of the individual member states which affect the Common Market;



Countries involved in the original "Inner 6" European Common Market, shown in color, are Belgium, France, West Germany, Italy, Luxemburg and The Netherlands. Shown in white are the countries in the "Outer 7" which comprise the European Free Trade Association. In this group are Austria, Denmark, Norway, Portugal, Sweden, Switzerland and the United Kingdom.

Central American countries, shown in color, which have entered into "free trade" treaties include Costa Rica, Guatemala, Honduras, Nicaragua and El Salvador. Members of the Latin American Free Trade Association (in white on the map) are Argentina, Brazil, Chile, Mexico, Paraguay, Peru and Uruguay.

the establishment of a European investment bank; and the coordinated development of oversea territories.

These objectives are to be carried out within the next 10 to 13 years. However proposals have been made to shorten this period considerably.

The first steps to eliminate trade barriers among the Common Market countries have already been put into effect. As of January 1, 1959, tariff rates were cut by 10 percent on most items the countries traded with each other. This reduction was later extended to outside countries for most commodities. The second step in the reduction of internal tariffs is scheduled for July 1 of this year. The first step in the harmonization and eventual unification of duty rates applicable to imports from outside countries, the establishment of a common external tariff, is to take place on January 1, 1962.

The United States is now preparing for tariff negotiations with the Common Market countries, which are scheduled to begin in September of 1960, and which are expected to result in lower duties for a number of commodities of interest to the U. S.

The United States is the largest single supplier of the Common Market, an area containing some 165 million people. Last year 16 percent of our imports came from the European Economic Community and about 14 percent of our exports went to them. The economies of the area have been expanding at a rate of 8 and 9 percent annually, on the average, so that now the gross national product of the Common Market is roughly 40 percent of that of the United States. Furthermore, the Common Market countries have dismantled most of their restrictions against United States exports and, their balance of payments position is the best that it has been since the war. The dangers of internal inflation seem to have been overcome.

Free Trade Association

Another trading area has emerged — the European Free Trade Association, composed of Austria, Denmark, Norway, Sweden, Portugal, Switzerland and the United Kingdom. A treaty has been drawn up, signed, and awaits ratification by the Parliaments of the governments concerned.

These countries, known as the "Outer Seven," with a population of 90 million, have a total output nearly two-thirds that of the European Economic Community; per capita income in the Seven tends to be higher than in the Six.

United States exports to the Outer Seven in 1959 totaled around $1.6 billion, about 10 percent of United States' non-military shipments to all areas. The United Kingdom was by far the dominant market, taking approximately 57 percent of all United States exports to the area.

Fully 40 percent of all goods moving to these countries from the United States in 1958 consisted of grains, raw cotton, tobacco and other farm products. Industrial raw materials — coal, petroleum, iron and steel, copper, synthetic rubber and chemicals and paper products — comprise another 30 percent of United States shipments to the Outer Seven. Although sales of certain types of paper, chemicals, and steel may be adversely affected by the progressive reduction over a ten-year period of internal tariff barriers there, a large portion of these items has a unique quality or quantity found only in the United States, thereby cushioning the impact of the new organization on trade in these commodities.

Finished goods, principally machinery and vehicles, may be the category of merchandise most seriously affected by the formation of the new trade bloc. United States shipments of such commodities to these countries amounted to over $400 million in 1958, roughly 30 percent of our total sales there. By individual countries, however, the share claimed by such items showed great variation, going from 20 percent for the United Kingdom to over 50 percent for Sweden.

Sales of United States machinery to this area have been concentrated in specialized equipment generally not available elsewhere. For example, despite stringent import licensing requirements during most of 1958 (controls were removed in September 1958), approximately 30 percent of total British imports of machinery that year originated in the United States.

Canada Is Largest Partner

Looking to our own hemisphere, we see that Canada continues to be by far our largest trading partner, providing more than 3 billion (21 percent) of our total imports and nearly 4 billion (23 percent) of our total exports in 1959. This is really enormous business if we consider that Canada's total population is only about a tenth of our own.

Canada's economic prospects at the beginning of 1960 are very favorable. The gross national product increased 7 percent in 1959 and a further increase of at least 5 percent is being predicted for the current year.

The expansion is primarily a matter of industrial growth. There are a notable number of new projects, including those in resources, such as the Northern developments in Quebec iron ore and Manitoba nickel, and of course, the Western oil and gas resources which continue to grow at a very fast rate.

We are in a position to furnish the tools for economic growth rather than the finished product for Canadian consumption. Our branch plants form a large part of Canada's industrial complex. Our largest export to Canada is machinery.

Before we go on to discuss the other areas of the world let us observe that our trade with Western Europe and Canada accounts for slightly more than half of our exports and slightly less than half of our imports. Yet these countries account for only some 275 million people or less than 10 percent of world population.

Other figures bear this out. In 1959 the Netherlands bought $51 worth of goods for each inhabitant from us; Belgium $39; the United Kingdom $17; and Germany $14. Canada, in 1959, purchased some $219 per person of United States goods. In contrast most of the less developed countries buy less than $2 per capita from us. In 1959 Pakistan bought $1.22 per capita, India only 86 cents per capita, and Indonesia 77 cents per capita from us.

Fears that the development of additional industrialized countries will be harmful to our exports are not borne out by experience. Our trade has grown fastest with countries which have a high standard of liv-

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ing, even though such countries essentially produce the same general classes of goods as we do. In this age of specialization the kinds of goods we buy and sell are not determined by broad product categories such as chemicals, electrical machinery, household appliances, and so forth.

Latin America

For some time the Latin American countries have been the principal source of United States imports, supplying on the average around 30 percent of the total. Last year (1959) Latin America lost the position it had held for two decades as the principal source of U. S. imports, but it remains a major supplier. Most of these imports consist of foodstuffs or of raw materials in crude or semi-manufactured form. Coffee, sugar, cocoa beans, bananas, fresh vegetables, meat, and fish are the chief items in the food category. Petroleum and products are second only to coffee among the major import items, and the metals are also important: iron ore, copper, lead, zinc, nickel, tungsten, tin.

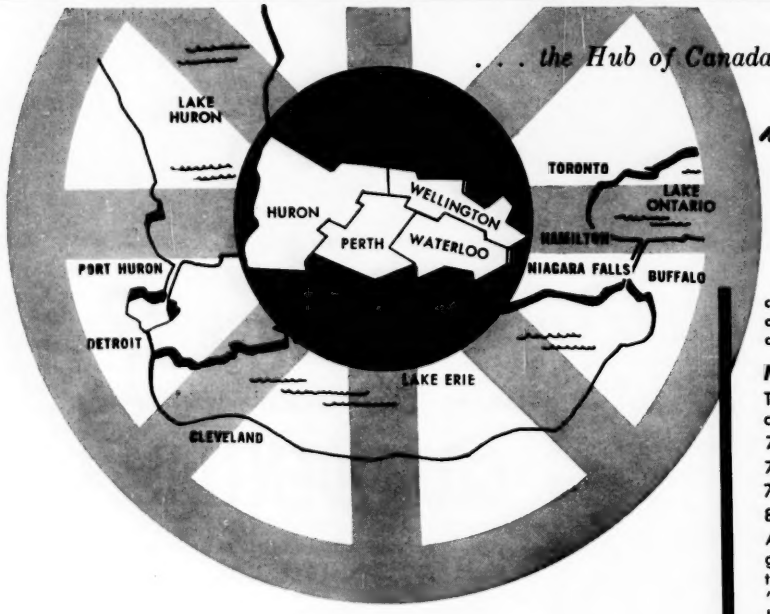
Some iron ore has been imported from Latin America for many years, but this has become a major item, as United States supplies of high-grade ore have dwindled. Latin America also supplies a number of additives or alloy metals, although these do not weigh very heavily in the value totals. Other important industrial materials include wool, vegetable seeds and oils, quebracho extract, hard fibres and wood.

So far manufacturing has been chiefly for the domestic market and in the light industry fields, but a few countries have integrated iron and steel industries as well as numerous metal working establishments. Some of the larger countries produce, for example, machine tools, textile machinery, typewriters, and electrical equipment. Virtually complete local manufacture of automotive vehicles is nearing realization in Brazil.

These structural changes in the Latin American economies are naturally reflected in the composition of their imports. Capital goods (machinery and equipment of all kinds) comprise the largest import group for the 20 Republics as a whole, but import of raw materials and fuels has risen in importance in recent years. Some of the countries are large importers of foodstuffs, but imports of durable consumer goods have declined in importance as local assembly, or manufacture, has grown

Before the war the United States supplied 33 percent of the aggregate imports of the 20 Latin American Republics (1936-38 average). During the war years, when most European countries and Japan were out of the market, the United States share rose about 60 percent. During the period 1950-56 the United States position settled down to an average of 50 percent, which is about our position now.

The desire for regional integration of the economies of nations too small to provide an economic market for some types of capital goods, has spread to Latin America. On February 18, 1960, seven Latin American countries (Argentina, Brazil, Chile, Mexico, Paraguay, Peru, and Uruguay) signed an agreement to establish a Latin American Free Trade Association, and agreed to submit the plan to



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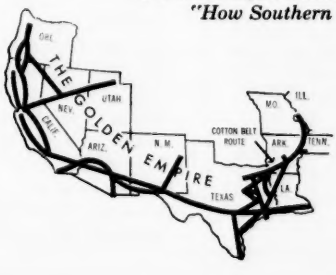

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GATT at its next meeting in Geneva. The treaty provides that within a period of 12 years the Contracting Parties shall gradually eliminate, for the "basic commodities of trade," the charges and other restrictions on the importation of products originating in the territory of any Contracting Party, by means of annual negotiations.

In its present form the Free Trade Association is hardly more than a statement of objectives and an administrative framework, as it avoids reference both to customs unions and to free trade areas. The reductions of charges and restrictions are contingent on annual negotiations, still to come, and the "safeguard" clauses or exceptions are very broad. The flexibility of the agreement is such that there is little assurance to traders or investors as to the position of any particular product. The essence of the undertaking appears to be in the provisions for "integration and complementation," especially in the industrial field, by means of reciprocal preferences.

The initiative for the establishment of the Free Trade Association was taken by the four southernmost South American countries, which together account for 80 percent of the intra-Latin American trade (excluding petroleum). The currencies of these countries had long been inconvertible, and most of their trade with each other was handled through bilateral payments agreements.

By 1959, however, these countries had shifted to a virtually free exchange basis, and some new arrangement was desired to provide an internationally recognized mechanism for continuing the preferential trade relations with their neighbors. The treaty establishing the Association provides that, after its entry into force, it can be adhered to by other Latin American nations.

The five historic Central American countries have, since 1951, taken various steps looking toward closer coordination of their economies. Several "free trade" treaties have been signed, as well as a Convention for a System of Integrated Industries, and a Convention on Equalization of Import Duties on merchandise entering from outside the area. A common tariff has been adopted, and there are agreements relating to highway transportation and regional training and research institutes.

Nevertheless, effective progress on the liberalization of trade and factor movements has been held up by political rivalries and different national points of view as regards the tempo and objectives of Central American "integration."

But there is no lack of favorable factors. Despite the discouraging panorama of inflation, balance of payments difficulties, and transportation and power bottlenecks, there is ample ground for faith in the future for those who can adjust to changing conditions.

The Far East

The Far East is the major source of certain raw materials for United States industry. The most important are rubber, tin and jute. In addition to these, the Far East also produces other basic commodities used by American manufacturers in varying degrees. These include various mineral ores such as amorphous graphite, chromite, manganese, tungsten, bismuth, titanium, columbite, tantalite, and monazite. Other principal United States raw material imports from the Far East are sugar, raw silk, oilseeds, spices, tea, lumber and hard fibers.

Although less than exports to Latin America, Western Europe and Canada, United States exports to the Far East are still sizable, and have averaged about 15 percent of total United States exports over the past 5 years. Approximately 22 percent of all imports into the Far Eastern area originated in the United States. With the exception of 1958, United States exports to the Far East have increased every year since 1954; this trend is expected to continue.

Practically all of the countries of the area have development plans with emphasis on industrialization. These plans differ from country to country, not only with respect to timing, but also with respect to scope and realistic goals. It is unlikely that all of the plans will be carried out in detail, as some appear over-optimistic, and in many countries there are heavy financial demands for social improvements and defense. Nevertheless, from the long range point of view, Far Eastern countries are expected to continue development of basic facilities such as road, harbors and electric power and also to push for the acceleration of industrial, mining and agricultural production.

These programs which in many countries of the area are assisted by United States technical and economic aid are affecting both the over-all volume and nature of our trade with the area. For example, between 1953 and 1959 purchases of United States-produced machinery and vehicles — mostly capital equipment — almost doubled (94 percent increase), and this trend is continuing.

On the other hand, the period ahead may be a difficult one for some of our exports to the Far East. A number of the Far Eastern countries are still to a considerable degree dependent on United States aid for much of their dollar exchange and are suffering from internal dislocations of their economies and inflationary pressures. The rapid pace at which they are attempting to industrialize is also causing adjustment problems and probably will continue to do so.

RALPH A. HOMAN

Executive Secretary Ralph A. Homan of the Cabinet Trade Policy Committee has held his present position since November, 1959. Prior to that time he was for two years assistant to the Assistant Secretary of Commerce for International Affairs. A 1933 graduate of the University of Kentucky Law School, Mr. Homan practiced law for 15 years, and before entering government service he was in the general mercantile business at Springfield, Kentucky. His government assignments have included positions at state as well as national levels.

The Trade Policy Committee makes recommendations to the President on basic policy issues arising in administration of the trade agreements program and other international trade programs. The committee is chaired by the Secretary of Commerce and comprises the Secretaries of State, Treasury, Defense, Interior, Agriculture and Labor.

The accompanying report was adapted from a recent talk made by Mr. Homan before the College of Education, Providence, Rhode Island.

Africa and the Near East

Africa is a continent of rich undeveloped natural resources, containing one-fourth of the world's total land area and 220 million inhabitants. But the economic growth of the area is also dependent on some amelioration of the present conditions of widespread poverty, disease, illiteracy, and political and racial tensions.

Nevertheless a gradual but steady economic growth has been registered in the past decade. European governments are estimated to be spending between $600 and $700 million annually in African areas; through 1959 the International Bank for Reconstruction and Development has granted loans totaling $696 million; United States aid has amounted to almost $700 million including $269 million from the Export-Import Bank. American private capital has almost doubled its investments in Africa from $400 million at the end of 1952 to $790 million at the end of 1958.

The African economies are becoming increasingly diversified and thus more able to withstand the cyclical fluctuations of world trade. Our trade with Africa (excluding Egypt and the Sudan) amounted to some $1¼ billion in 1959, about evenly divided between imports and exports. Africa provides us with nearly all of our palm oil, over three-quarters of our cobalt, over 90 percent of our columbite and appreciable percentages of our imports of copper, cocoa, and hides and skins. Quantitative restrictions against imports from the United States are being reduced in many areas, a process aided by recent actions of most West European countries in making their currencies externally convertible.

As the development of Africa proceeds our machinery, textiles, iron and steel and other metal manufactures, chemicals, automobiles and petroleum and petroleum products should find increasing acceptance and markets.

The Near East has been a consistent bright spot in our foreign trade picture. Total 1959 United States trade with the Near East amounted to over $1,200 million, an increase of over 60 percent since 1951 as compared with an increase of 32 percent in United States trade with all countries.

The industrialization program in Israel should result in a continuation of demand for industrial machinery. The decrease in Israeli procurement of industrial machinery from Germany under the reparations agreement should stimulate imports from the United States.

The oil producing countries in the area, notably Kuwait and Saudi Arabia, should continue to be good customers. And Egypt should prove a better market if the present trend of its improving relations with the West continues.

Our prospects are as bright as ever, our abilities and our energies are the same as those that made this country great. However, let us not assume that the brilliant progress we have made in the last few decades is a law of nature. The United States is not the only powerful economic producer in the world. We will now have to use the full resources of our people and our economy to maintain and increase our position in world trade.

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cover story

CLARK EQUIPMENT COMPANY:

SUCCESS RIDES ON A FORK LIFT TRUCK

Describing the tripling of Clark Equipment's earnings since 1945 as "hardly an accident," the company's chief executive outlines here the planning that has gone into this growth and presents some ideas on future expansion programs.

By George Spatta

For a company that got into the materials handling business by accident, Clark Equipment Company has done relatively well.

In 1959, sales were $208.184 million — largest in 57 years of operation. Earnings were $12.402 million — also a record.

For purposes of comparison, Clark opened the decade with sales of $63.723 million in 1950 and earnings of $4.782 million.

An even better indication of growth for a capital goods producer such as Clark Equipment is to average out sales and earnings over periods of several years. This is due to the somewhat cyclical nature of the capital goods industries (a fact of life Clark has attempted to overcome).

In the 15 years since the end of World War II, sales and earnings averaged over five-year periods are:

	Sales (5-yr. average)	Earnings (5-yr. average)
1945-49	$ 55,013,000	$2,915,000
1950-54	102,754,000	5,290,000
1955-59	154,100,000	9,203,000

On this basis, sales and earnings of Clark Equipment have tripled since the immediate postwar years. Growth of this kind is hardly an accident, even though the initial action that sparked it was certainly far from preplanned.

First Truck Solved Problem

Clark Equipment's roots in the materials handling business go back to World War I. In those days (and now, too) Clark was recognized as a leading producer of heavy automotive drive unit components — transmissions, steer and drive axles, axle housings — used in trucks and other heavy automotive equipment. The war resulted in unprecedented orders and the need to move large tonnages of material through Clark's plant at Buchanan, Mich.

An ingenious plant manager tackled the materials handling problem by building a small fleet of platform trucks capable of transporting heavy steel castings from one production operation to another. These trucks did the job well, but there was no thought of offering them for sale until the idea came from a group of industrialists touring the plant after the war.

One member of the party spotted the sturdy little platform trucks scooting about the Clark plant and, on the spot, put in his order for materials handling trucks for his own plant. From that time on, Clark has been in the materials handling business — now some 40 years.

The concept of mechanized materials handling, however, infiltrated industrial thinking very slowly until World War II. Even as recent as 1939, Clark had materials handling sales of less than $2 million

These men are checking out a shipment of Clark fork trucks at the Battle Creek, Michigan, plant of Clark Equipment Company. The firm produces the nation's broadest line of materials handling industrial trucks.

per year. But the requirements of war demanded the handling of varieties and tonnages of materials not dreamed possible — in locations as remote as New Guinea and the Aleutians. There was instant recognition of the need for mobile materials handling equipment. In 1942, Clark Equipment produced more fork lift trucks than the entire industry combined had produced up to that time.

Acceptance: Greater Sales

By the end of World War II, organized materials handling was an accepted way of production life — so much so that, in 1959, Clark sales of materials handling equipment were 40 times greater than they had been two decades ago.

One factor fundamental to the growth of our materials handling business — and our business as a whole — is Clark Equipment's original Automotive Division. In addition to supplying drive unit components to the big truck and farm tractor manufacturers, this division also manufactures transmissions, axles and other power train components for Clark's own end products.

As we moved into the 1950 decade, our management committed itself to the objective of broadening the company's scope of operations. We wanted to accomplish this objective by producing more end products (as contrasted with automotive components sold to other manufacturers of end products) and we believed that we should capitalize on our special abilities in the materials handling field. We agreed further that we should capitalize on our years of know-how and our fine production facilities for making power trains for automotive-type vehicles.

In 1953, Clark Equipment formed its Construction Machinery Division. In just seven years, sales of this division have increased from $3.5 million to $63 million and our "Michigan" trade-name has become well-known in the construction industry.

The reasons underlying our sales growth are, in my opinion, a combination of our approach to entering a new market and the simple fact that we were starting absolutely fresh. In other words, we had no inventory of spare parts to protect from obsolescence, nor any tooling that we wanted to make do. It was therefore possible for us "to start with a blank sheet of drawing paper" and design the product to do the job — not the compromise that would make use of existing tooling or spare parts.

What Customers Want

Our approach in designing the first new products of the "Michigan" line — a line of tractor shovels — was to make a thorough study of what contractors (and other users of this class of equipment)

Here a worker is machining troque converter components. Clark Equipment is one of the major manufacturers of heavy automotive power train components like transmissions, torque converters, axles and axle housings.

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wanted and a thorough evaluation of every existing machine on the market. These studies were a prelude to setting the goal of designing equipment that would literally "out-spec" the competition. Within three years, the "Michigan" tractor shovel took the position of industry leader in an industry where there is no lack of strong, aggressive competition.

At the time the tractor shovel line was being designed, it was our ultimate objective to design, manufacture and market a rather broad line of construction and earth moving machines — specifically, a full line of tractor dozers and tractor scrapers. We therefore undertook to do our original design work on a full line of equipment, a factor that would enable us to offer maximum parts interchangeability among our various lines of machines. No other manufacturer can offer this feature on so extensive a basis.

Highway Trailer Business

In 1958, Clark took advantage of another opportunity to broaden its scope within the materials handling framework. This put us in the highway trailer business through purchase of Brown Trailer Company, a pioneer and leader in high quality aluminum trailers. Here, again, was a business that met our specifications of a related product line (in the overall field of materials handling) and a business that would take advantage of our Automotive Division know-how and production facilities (approximately 15 percent of the total cost of a highway trailer is accounted for by its underpinnings and running gear).

At the time of its purchase by Clark Equipment, Brown Trailer had annual sales of approximately $13 million and plants at Spokane, Washington, and Reading, Pennsylvania. In its first full year of operations under Clark management, this new division had sales in excess of $20 million. A new plant has been erected in Michigan City, Ind., in the heart of the transportation industry and new sales and service branches have been created in major metropolitan centers across the country.

The product line has been expanded substantially with the addition of a line of steel trailers (steel and combination steel-aluminum trailers are the biggest share of the market). Greater financial resources are being utilized by the division than was available to Brown as a privately-held business. All in all, the operation is considerably stronger today than it was at the time of acquisition.

Expansion on Large Scale

Up to this point, we have had still another criterion for our expansion and diversification program (in addition to a relationship to materials handling and an ability to use our automotive manufacturing facilities). This requirement is that we choose to go into new businesses that have a large enough sales potential to make it worthwhile to invest management manpower and the shareholder's equity. At the outset of an undertaking — in fact until it gets fully under way — it takes little more management effort and time for a big enterprise than for a smaller one.

Accordingly, our goal has been to seek out new business opportunities that had the potential of providing us with $100 million annual sales within a ten-year period. In both the Construction Machinery Division and the Brown Trailer Division, there is not only such a potential — we are fairly confident of achieving the potential.

In reviewing Clark Equipment Company's growth over the past decade, it is sometimes difficult to believe that similar growth is possible in the 1960s. It is our belief at Clark Equipment that a similar rate of growth is not only possible but that it is likely to be achieved if we will continue to set high goals and continue to demonstrate the imagination and courage required to attain those goals.

The opportunities in the capital goods industries are as great today as they were ten years ago. In fact they should be even better. Technology moves more rapidly today than it did ten years ago; the rate of obsolescence is therefore faster. Labor rates continue to move upward; pressures for price reduction do not diminish. In these circumstances, there is need for more efficient, more economical machines — machines that will be provided by capital goods manufacturers who demonstrate the imagination and make the investment of manpower and capital necessary to the development and production of superior machines. This, we believe, Clark Equipment can do.

"EXECUTIVE MECHANIC"

George Spatta, Clark Equipment Company's aggressive president, often describes himself as a "mechanic." This goes back to the early days of his career, when he was a development engineer and later a production manager. An alumnus of New York's Cooper Union, where he studied engineering, he got his first industrial experience at General Electric. By 1927, he had become plant manager of a GE switchgear plant in Baltimore.

In that year, he met the brother of Clark Equipment's founder, the late Eugene Clark. He was asked to come to Clark Equipment as a development engineer; was made a vice president in 1935. One of his major contributions in his early days at Clark was the development of the process, still in use, for manufacturing one-piece banjo axle housings for trucks. In 1938 he was elected executive vice-president and president in 1945.

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Muskegon, Michigan—A 100-acre site located just south of the city. A road divides it into two natural parcels, 30 acres and 70 acres. Roads also bound the 1000-ft. depth north and south. Western boundary is C&O mainline; eastern is new 4-lane U.S. Highway 31, for nearly a mile. A fine level site, zoned for heavy industrial use. Highly diversified labor force.

Newport News—Hampton, Va.—In Copeland Industrial Park you will find any size site needed, offering economy and construction speed because all sites are graded; water mains, gas, electric utilities all in. Linked to Hampton Roads, one of America's busiest harbors, and the C&O Railway. A ready supply of both skilled and unskilled labor.

Griffith, Indiana—This 153-acre site is zoned for industry and well-suited for complete plant and marketing operation. Bounded on south by C&O mainline. Four other railroads junction at Griffith, a residential community 28 miles from downtown Chicago. U.S. Highways 6, 30 and 41 nearby; six airports within 15 miles. Favorable labor. Adequate electricity, gas and water.

Logan, Ohio—Forward-looking community in the Hocking River area where several choice industrial sites are available. Abundant fuel sources in coal, oil and gas; adequate electric power and water supply. Served by C&O and U.S. Highway 33. Large labor reservoir, both skilled and unskilled. Pleasant community only 49 miles from Columbus.

Lansing, Michigan—A fine 12-acre parcel just outside city limits, and zoned for industry. Bounded by C&O and State Route 174, and 2000 ft. distant from main east-west artery U.S. 16. Water, sewers, and gas are all adjacent to the site, with firehouse directly across the road. Excellent skilled labor source from this state capital city of 128,000 population.

South Central Ohio—The Scippo site on the outskirts of Circleville is close by the duPont Mylar polyester film plant. This 55-acre property is bounded by 4-lane highway U.S. 23 and double-track mainline of the C&O. Abundant water, electricity and natural gas serve the site. A ready supply of high-grade bituminous coal and high quality coke. Excellent labor source.

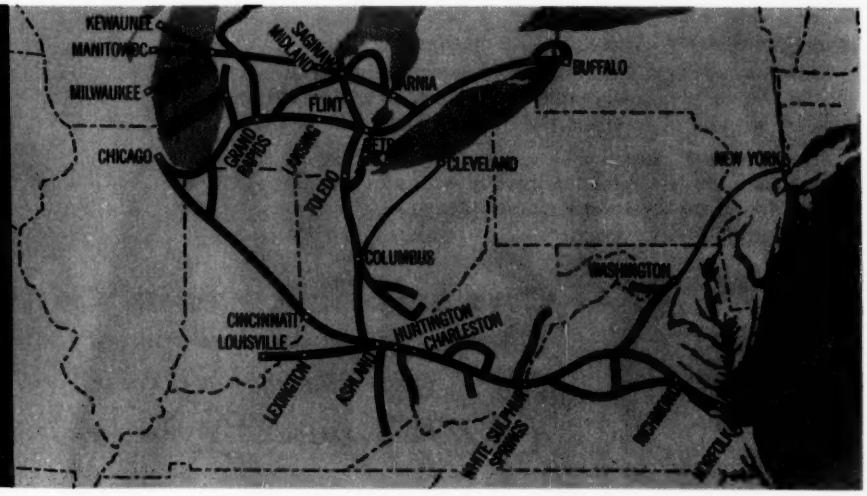
Siloam, Kentucky—A 430-acre site along the Ohio River opposite Portsmouth and adjacent to Columbia Hydrocarbon Corp., ethylene producer. Served by C&O mainline and U.S. Highway 23. Fuel and power sources ample and dependable. Abundant nearby supply of high grade coal and coke. Labor is adequate, both skilled and unskilled.

Complete industrial surveys of these and other sites along The Chessie Route are available to interested companies. Inquiries are handled in complete confidence and without obligation. Address: Wayne C. Fletcher, Director of Industrial Development, Chesapeake and Ohio Railway, Huntington, West Virginia. Telephone: JAckson 3-8573.

There's Opportunity for Industry all along the Chessie route

C AND O

Outstandability in Transportation



NORTH CAROLINA

When you take a close look at North Carolina, with plant location possibilities in mind, you will find that the state offers a particularly advantageous combination of such things as easy accessibility to the nation's major markets, highly varied topography and natural resources, excellent research and educational facilities, a tradition of culture, and eager citizenry ready and able to give full cooperation in carrying out any new project.

The State With An

RALEIGH. A little less than two years ago I.D. took a look at North Carolina and discovered that the state during the postwar years had achieved a record of industrial progress that was extremely well worth writing about.

And now, on a return visit, we found that since our last close look progressive things have been happening here at an even faster rate.

Among the comments we made in the 1958 report was this: "The Tar Heel State already has chalked up an enviable record of industrial growth, and it intends — enthusiastically — to maintain that fast pace of development."

At the same time, North Carolina's brilliant and hard-selling Governor Luther H. Hodges told us that his administration had gone all-out to supply the leadership and energy to accelerate the growth of the state and to make it progressively more attractive to industry.

As we noted, the results then were quite obvious, and it is certainly most encouraging that what has happened since is even more remarkable.

Observe, for example, that during 1959 North Carolina recorded 571 new projects, either new plants or major expansions of existing units, which added 36,331 new jobs and new payrolls totaling $118.268 million.

That compares with 423 new projects in 1958 which added 21,757 jobs and $72.633 million in new payrolls.

The new capital investments in plant and equipment during 1959 totaled $223.513 million. This was somewhat less than the $253.074 million of the previous year, but the important fact is that the expansions last year resulted in a far greater number of new jobs and a much larger additional total of new payrolls.

Comparable progress is being made in 1960. New

Typical of fast-growing industries in North Carolina is the plant of Wright Machinery Company Division of Sperry Rand Corporation at Durham. Here Governor Hodges, wearing the inevitable white carnation, pays an unexpected visit to the facility to see the latest developments there. This new machine will make, fill and seal bags of potato chips at a speed of 2,400 bags an hour — all automatically! Others in the picture (left to right) are John B. Wilson, Wright president; J. C. Petrea and Gilbert W. Tew, engineers in charge of the project.

'Extra Something'

industries and additions to existing plants totaled 130 in the first quarter this year, as compared with 124 for the first three months of 1959. The latest total set a new quarterly record.

Capital investments for the first quarter of 1960 amounted to approximately $42.5 million, as against $25.5 million in the like 1959 period.

How to Make A State Grow

The underlying factors in this continuing growth are many, of course, but it's a fact that a great deal of the credit must go to highly voluble and mobile Governor Hodges.

In his trips outside North Carolina and outside the United States to sell his state's advantages, the Governor always stresses that, "We have no carefully guarded secret — the formula for our 'extra something' cannot be found in our files or our brochures, or even in our methods and organization.

"I tell them," he declared, "and the conviction that I am right grows stronger each day, that our secret weapon is the individual North Carolinian — more than four million individuals who know the true meaning and value of genuine hospitality and mutually beneficial cooperation. I tell them that it is an intangible, yet unique, quality — easy to detect but difficult to describe."

In doing all that telling, the Governor in 1959 hit a new high in travel distance, racking up a total of 67,262 miles. That topped his previous mark of 66,087 miles totaled in 1958. In the course of these trips he made about 150 speeches in 1958 and some 120 in 1959.

Mileage totals for other years were 62,864 in 1957; 57,167 in 1956, and 44,929 in 1955.

In the Governor's 1959 travels, by far the most dramatic trip was the one to Europe. He headed

a North Carolina Trade and Industry Mission comprised of 68 men in three groups. They told the state's story of economic opportunity to approximately 1,600 European business and industrial leaders through luncheons, dinners and personal visits. It is noteworthy, by the way, that the members of what Governor Hodges dubbed "Club 68" paid their own way on the Mission.

How well did the North Carolina story go over? Here's what the Governor says: "The results clearly indicate that this mission will result in stronger trade with Europe for our two state ports, will in time provide added industrial development for North Carolina through European-financed plants or European-controlled franchise agreements, and certainly will bring about better and deeper understanding between our nations."

Although, he pointed out, the basic purpose of the Mission was long-range development, already at least 276 Europeans have indicated a definite interest in North Carolina now. The records show that 79 contacts are showing definite interest in ports, 12 indicate a definite interest in the Research Triangle, 26 show an interest in possible manufacturing operations, 41 are looking for sales outlets or similar arrangements, while seven have asked about producing their products under a licensing agreement, and 83 have indicated a general interest in the state.

"We can expect," the Governor said further, "additional inquiries, calls and visits in the months ahead, as more European businessmen look to America for increased trade, more production facilities and investment opportunities. We are receiving letters from Europeans who have noticed the accounts of our visit in their local newspapers and want more information about what North Carolina has to offer."

The Mission received extensive newspaper, television and radio coverage both in the United States and Europe. Governor Hodges stressed that this coverage "resulted in a better understanding of what we were trying to accomplish in Europe and also emphasized the warm and friendly receptions which our groups received everywhere they went."

The members of Club 68 visited cities in England, The Netherlands, Germany, Switzerland and France. They made contacts with such industries as shipping lines, banks, electronics, heavy and light machinery, tobacco manufacturing, toys, food processing, chemicals, and automobile parts and assembly.

Governor Hodges emphasized that one of the most obvious benefits from the trip will be increased business for the state's two deepwater ports at Morehead City and Wilmington.

Following Up The Leads

Since the initial European trip was so successful, the Mission was scarcely back in North Carolina before plans were made for a follow-up tour. The result was that on March 11, 1960, four members of a seven-man team of Tar Heel business and industrial leaders took off again for Europe. They were joined later by the three other members of the team.

Orton Boren of Pleasant Garden, temporary chairman of Club 68, reported that the follow-up group concentrated its activities in about a dozen European cities and called on people who have shown "more than a casual interest in the state" as a result of the original Mission.

This trip was a six-week tour. And, as before, the business and industrial men in the group paid their own expenses.

Following the Trade and Industry Mission to Europe, many business leaders from the Continent expressed a definite interest in North Carolina. Werner Hilscher (left), engineering representative of a firm in Hamburg, Germany, recently visited North Carolina and discussed port facilities with William R. Henderson (center), state industrial development administrator, and D. Leon Williams, director of the North Carolina Ports Authority.

As a part of all this, North Carolina has had a booklet printed in German, telling what the state has to offer industry, which was distributed to West German industrialists.

Besides extolling North Carolina's location factors, the booklet explains in detail the ties that the state has with West Germany in industries founded here by Germans.

On the front cover of the booklet is a picture of Governor Hodges and a color picture of the State Capitol. The caption under the capitol picture reads: "Nordkarolina, Der 'Tar Heel' Staat."

The next important trip came in mid-May when Governor Hodges led another group of North Carolinians to New York City. On this occasion heavy stress was laid upon the advantages North Carolina has to offer industry seeking branch site locations, what the state is doing to expand its industrial education program to provide industry with more skilled workers, and in showing manufacturers the opportunities awaiting them for successful operation of plants in the state.

From such things as this you can readily see that not only is North Carolina doing one of the most remarkable promotion jobs the nation has ever seen but also has proved itself to be in a position to back up its claims.

It is obvious, too, that the Governor himself constitutes one of the state's biggest plus factors. He was born in Leaksville on March 9, 1898, served in World War I, and graduated from the University of North Carolina in 1919. That same year he joined Marshall Field & Company as secretary to the general manager of the Leaksville-Spray Mills. Through successive promotions he rose to become a vice president of Marshall Field in 1943, subsequently resigning to devote his time to public service both in the United States and abroad.

In 1953 he was elected lieutenant governor of North Carolina and became Governor in 1954 following the death of Governor William B. Umstead. Governor Hodges was elected for a four-year term in 1956.

During his term of office he has done an almost unbelievable job of selling the virtues of North Carolina, has won friends for himself and his state wherever he goes, and has enjoyed acclaim and popularity at home that is unusual in a state with strong factions within its dominant Democratic party.

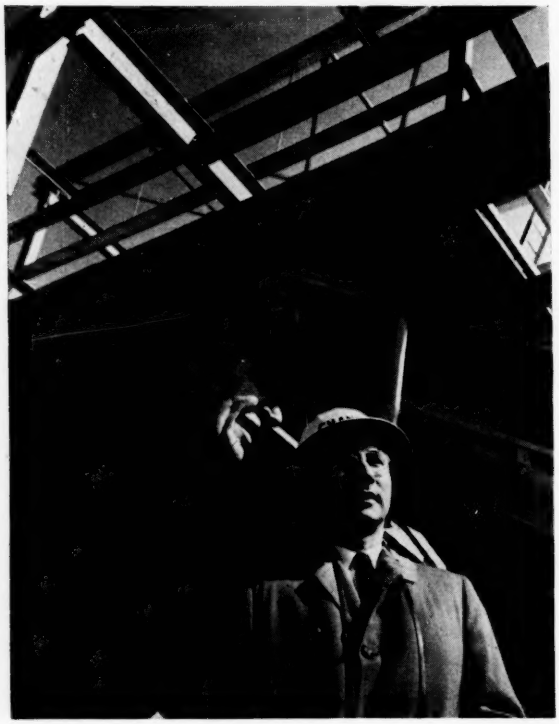
Some inkling of his inherent greatness as a man may be gleaned from this excerpt from a speech he made recently in New Haven, Connecticut: "What we need in both of our major political parties and in all sections of this nation is love and concern for our country first with political expediency or advantage placed last. Above all we need more leaders who have the courage to speak, not for the North or South or East or West, but for the American people as a whole."

Progress in the Research Triangle

In addition to North Carolina's accelerating pace of industrial growth, marked progress has been made in recent months in the state's unique Research Triangle which consists of the University of North Carolina in Chapel Hill, Duke University in Durham and North Carolina State College in Raleigh.

Archie K. Davis, president of the Research Triangle Foundation, shows the model of the new Hanes Memorial Building to Mrs. Meade Willis, Frank Borden Hanes and Mrs. Robert M. Hanes while Governor Hodges looks on. The occasion was the recent ground-breaking ceremony for the building. The late Robert M. Hanes of Winston-Salem was one of the state leaders who made the Research Triangle Project a reality.

For example, now under construction in the Research Triangle Park is a multi-million dollar research laboratory for The Chemstrand Corporation. The facility will employ more than 400 persons by 1963, and it is expected that it will begin operations late in 1960. The Research Triangle Park is about in the center of the triangle formed by the three big institutions of higher learning.



Governor Hodges (left) and Dr. David W. Chaney, executive director of research for Chemstrand Corporation, inspect the construction of the new Chemstrand Research Laboratory which is being built in the Research Triangle Park.

The Chemstrand Corporation, manufacturers of Acrilan acrylic fiber at Decatur, Alabama, and Chemstrand nylon at Pensacola, Florida, presently has research facilities at Decatur. The latter, however, have been outgrown, according to Carl O. Hoyer, vice president and general manager of manufacturing, engineering and development for the company.

Concerning the North Carolina location for the new installation, Mr. Hoyer said the corporation desires its research function to be in a location most advantageous both for the conduct of research and for the support of its long term objectives.

He added that with a need by other Chemstrand technical personnel for the space presently occupied by research in Decatur and with a need for the research function of Chemstrand to be in an area of scientific activity and stimulation, the corporation decided to locate its expanded research laboratory away from its present location and in a university community.

Chemstrand's Research Director Dr. David W. Chaney cited the availability to his company's scientists of contacts with their professional counterparts and other attributes of the Triangle area as compelling reasons for selection of the area as the location for the new laboratory. In short, he stressed, it is the existence and strengths of the three universities which were the determining factors in Chemstrand's selection of the Triangle.

Also new in the Triangle Park is the Hanes Research Building. Governor Hodges led the ground-breaking ceremonies for that facility on March 8, 1960, and construction is now well under way.

Called the Robert M. Hanes Memorial Building, the facility is a gift to the Research Triangle Foundation from the brothers and sisters and business associates of the late Robert M. Hanes, Winston-Salem banker.

Costing $321,186, the building will house offices of the Research Triangle Park, the Research Triangle Foundation and the Research Triangle Institute. The structure will have 18,350 square feet of floor space.

The third new development in the area will be the Camille Dreyfus Laboratory to be established on the campus of Research Triangle Institute. Construction of the new international center of polymer chemistry has been made possible by a grant of $2.5 million from the Camille and Henry Dreyfus Foundation. Dr. Camille Dreyfus was the founder and first president of Celanese Corporation of America.

Polymer chemistry was an integral part of many of Dr. Dreyfus' now world-famous scientific achievements in the field of cellulosic chemistry.

Although owned by the Research Triangle Institute, and operated as a part of the Institute's research activities, the laboratory will have its own building, research program, staff and facilities. Construction was scheduled to begin in mid-1960.

The laboratory will be located on the Research Triangle Institute's 200-acre campus in the 4,500-acre Research Triangle Park. Of contemporary design, the building will have 20,000 square feet of floor space, including a 200-seat auditorium, and will cost approximately $700,000.

The remainder of the grant from the foundation will be used to support the basic research

activities to be carried out at the laboratory.

A Planned Research Area

As explained by James B. Shea, Jr., executive vice president of the Research Triangle Park, the park itself is one of the nation's newest planned developments for industrial and governmental research. It is a wholly-owned subsidiary of the non-profit Research Triangle Foundation of North Carolina.

The Research Triangle Institute, where the new laboratory will be, is a non-profit North Carolina corporation organized to do contract research for industry and government throughout the United States.

Pointing to the influence of the three universities on the entire Triangle organization, Mr. Shea noted that the presidents of both Duke University and the Consolidated University of North Carolina are active members of the Triangle Foundation's board of directors and have representation on its executive committee.

The park, with a majority of its directors being North Carolina business men, has university representation on its board and a majority of the directors of the Research Triangle Institute are representatives of the three universities.

In a further discussion of the over-all scientific and cultural resources of the Research Triangle as a whole, Dr. George L. Simpson, director of the Governor's Research Triangle Committee, stressed that from the standpoint of convenience alone the center of the Triangle area is no more than a 15-minute drive to any one of the three college campuses and to the communities in which they are located.

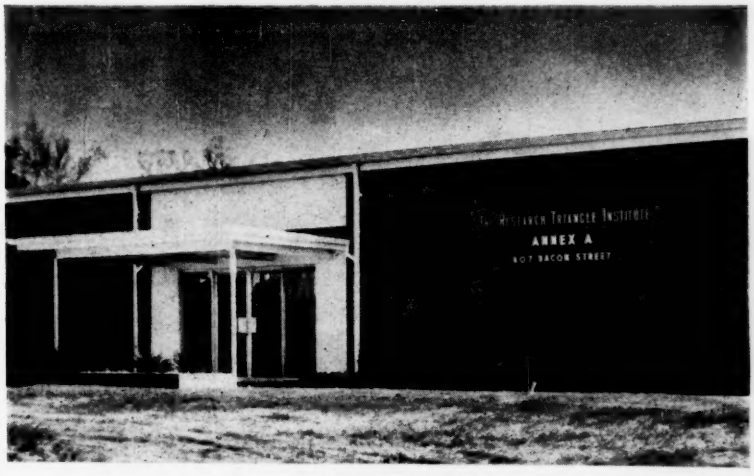
Thus, he said, for all industrial purposes the three institutions constitute a single campus. And, indeed, they constitute the outstanding concentration of academic science and scientific training in the South, and one of the outstanding such concentrations in the nation.

This Research Triangle area thus offers one of the most attractive sites to be found anywhere in the nation for the location of industrial laboratories. The industrial laboratory located in the Research Triangle will place the industrial scientist and his family in the very midst of three universities, two of which are members of the Association of American Universities.

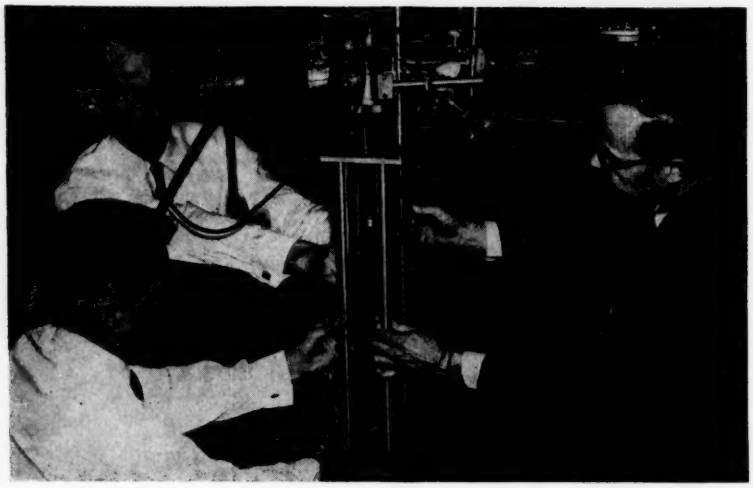
There are some 2,000 faculty members on the research and teaching staffs of these three schools, who themselves are carrying on research programs that are currently budgeted at more than seven million dollars. These faculty members are drawn from every university in the nation, from many foreign universities, and in much of their work they are in the front rank of the advancement of knowledge.

The combined total volumes of the three libraries are now nearly 2.5 million volumes; these are all easily accessible, either directly or through fast inter-library loan. Virtually every scientific periodical is available, with all titles listed in a published checklist.

There are 18,000 students enrolled in the three institutions, and each year about 1,200 young people trained in the sciences are turned out with either the baccalaureate or graduate degrees. As it happens, two-thirds or more of these young people trained in science normally leave the state and region for suitable employment. A great many would prefer to stay at home. The industrial la-



The Research Triangle Institute, Annex A, Nuclear Laboratory, is located in the Durham Industrial Development Company Park. The laboratory is operated by the Research Triangle Institute, a non-profit organization, and provides research services in areas of the physical sciences, engineering, statistics, and operations research.



Duke University at Durham is the center of much research activity. Here three scientists make an adjustment in a new "heat rectifier" that makes possible the attainment of temperatures a few hundredths of one degree above absolute zero. The three are (left to right) Dr. C. Darby Fulton of the engineering faculty; Chester F. Hwang of East Point, Georgia, a physics graduate student, and Dr. William M. Fairbank of the physics faculty.

oratory located in the Research Triangle is thus presented with an excellent annual supply of new talent.

For the industrial scientist at work, the three institutions have expressed themselves willing to offer credit courses, at both the undergraduate and graduate levels, at times convenient for the industrial scientist, and whenever the demand justifies such steps. Moreover, there are already established those professional meetings and activities which are of such importance to both the academic and industrial scientists. Local chapters of almost all professional societies meet regularly, usually on a monthly basis, and the programs more often than not include distinguished speakers from throughout the nation and world. Indeed, the 2,000 faculty members and their predecessors have for so long been parts of the communities that the industrial scientist will feel completely at home in this environment.

The University of North Carolina is the location for a new giant computer installation which will be available for work with business, industry and government. Dr. John W. Carr III, director, points out the heart of the computer to Governor and Mrs. Hodges during an inspection visit. At left is Tom Saboski, computation chief, and at right is Robert E. Giles, the Governor's administrative assistant.

Enrollments in the area of prime interest to industry are as follows: In all engineering, 3,748 undergraduates, 133 graduate students; this includes 1,000 in electrical engineering, over 800 in civil engineering, and 900 in mechanical engineering; a recent development has been in the field of nuclear engineering where 242 undergraduates are enrolled, together with 40 graduate students. In chemistry, there are 250 undergraduates and 100 graduate students; in mathematics, 49 undergraduates and 36 graduate students; in physics, 90 undergraduates and 65 graduates; in statistics, 2 undergraduate and 56 graduate students.

In every basic subject-matter area, such as chemistry, physics and biology, there exist in these three institutions excellent undergraduate programs of teaching, and well-developed graduate-programs of training and research. All three institutions are major universities in the full sense of the word. There are two schools of engineering, two schools of forestry, a school of textiles and a school of agriculture. Special equipment includes several nuclear reactors and two Van de Graaf accelerators, together with advanced computing machines including the latest Univac scientific electronic computer.

Standing atop North Carolina State College's nuclear reactor shield, Reactor Operations Engineer Harold B. Carter guides a solid uranium fuel element into a tank of the college's new KW nuclear reactor which was placed into operation recently. Field Engineer Robert Wendland of Nucledyne Corporation, Chicago, builders of the reactor, gets set to lower element in reactor core with a rod.

When the resources of the three schools are considered together, they present surprising concentrations in various fields. An example is found in the field of pharmaceuticals.

To begin with, there is at Duke University the distinguished School of Medicine, together with its teaching hospital and School of Nursing. Ten miles away at Chapel Hill is the relatively new University Medical School, together with its teaching hospital, School of Nursing, of Dentistry and associated School of Public Health. At Chapel Hill also is the School of Pharmacy, which has a well-developed graduate as well as undergraduate program. Rounding out the picture are the large and varied resources for research in plant and animal growth, pathology and nutrition and pesticide damage in the School of Agriculture at North Carolina State College. This total, taken together, is certainly a major concentration of such resources, and one that offers much to a pharmaceutical concern.

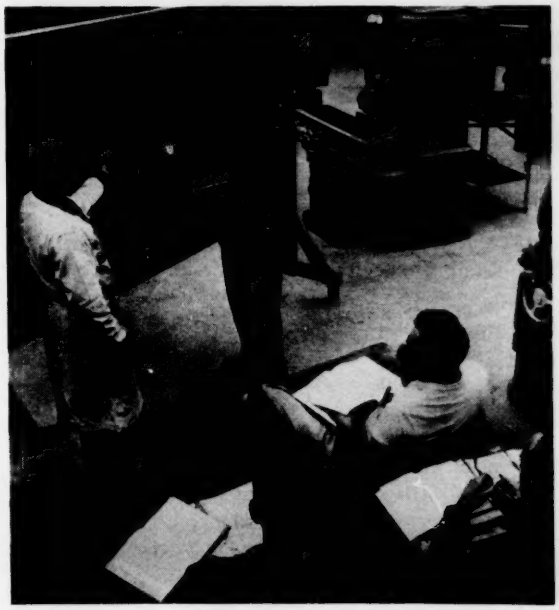
An outstanding feature of the area is the Institute of Statistics, sections of which are located on the campuses of the University of North Carolina in Chapel Hill and North Carolina State College in Raleigh. This world-known institute currently carries on a large program of research work, and is especially well-adapted to delineating and servicing research programs of all sorts and kinds.

Of major importance is the fact that the Raleigh-Durham Airport is located almost exactly in the middle of the Triangle area, and that from this airport it is now only one hour's flying time to Washington and slightly over two hours' flying time to New York. The industrial scientist thus may live in an environment peculiarly suited to him and yet remain in close touch with executive offices and perhaps even production facilities located elsewhere.

The Research Triangle is also an outstanding area in which the industrial scientist's family may live. To be found here are most of the advantages of a large metropolitan area, without many of the disadvantages of congestion and noise and lack of space. Each year many concert artists and groups appear here, along with many touring companies of Broadway shows, and scarcely a week passes during the fall and winter months when a speaker of national reputation does not appear somewhere in the Triangle. Schools are excellent, building costs low, and life goes along at a steady and fullsome pace.

Strength in Education

Besides the great institutions which comprise



Thorough job training is being given to qualified young people and adults at new industrial education centers across North Carolina in a program authorized by the General Assembly. Here an instructor, whose regular job is in a nearby industry, teaches a class at the new Burlington Industrial Education Center where 1,000 students are receiving training in such subjects as machine shop, electronics, industrial chemistry, sheetmetal, and so on.

the Research Triangle, North Carolina has many other outstanding colleges plus a progressive public school system which have long made the state outstanding in education not only in the South but nationally.

The state has 12 publicly supported degree-granting colleges, three community colleges, and 45 private colleges, universities and junior colleges, including three new private colleges scheduled to be opened during 1960.

Latest available figures show that the state has approximately 3,000 primary and secondary schools. The total includes 2,029 elementary schools, 54 junior high schools and 910 high schools. Total enrollment in these institutions is well past the million mark.

Of particular importance to the residents and prospective residents of the state is the fact that the elementary curriculum in North Carolina is designed to provide for individual children, according to their needs and abilities, a balanced program in reading, language, spelling, writing, arithmetic, social studies, health, physical education, art, music and science.

The high school curriculum is even more flexible, containing both required and elective courses. This flexibility allows for recognition of individual differences in ability and provides educational programs commensurate with vocational choices.

In the operation of vocational programs, the North Carolina Department of Public Instruction cooperates fully with local administrative units. Training for a variety of skilled trades is operated in nearly all city administrative units.

Of special interest to industry is a new system of industrial education centers offering such things as (1) pre-employment training for high school pupils in skilled trades; (2) pre-employment training for young adults in skilled trades; (3) job instructor, job relations and job methods training for supervisors; (4) related instruction training for apprentices and (5) extension training for employed workers.

In addition, technical training for high school graduates is offered by the Gaston Technical Institute which is operated by the Extension Division as a part of the School of Engineering at North Carolina State.

Sponsored by the State Board of Education, these new centers furnish equipment and pay the cost of construction of instruction at state expense to selected high school youngsters and adults in training for skilled trades and technician areas. Eighteen centers have been approved and 12 will be in full operation this fall in new buildings costing more than a total of $3.5 million.

Modern school buildings and facilities are springing up all over North Carolina. This is the new Gerringer high school just completed in Charlotte, which is winning attention and awards for good design and utility. Altogether, the state has approximately 3,000 primary and secondary schools, and total enrollment at these schools is well past the million mark.

Other technical institutes and short courses of the Extension Division deal with such things as truck driving, gas technology, electrical meters, transportation and industrial safety, surveying, furniture manufacturing and finishing, brick and tile, heating and air conditioning and many other fields.

Industrial employees — technicians, supervisors, executives and others — are given opportunities in night class programs to extend their knowledge and increase their vocational standing. Industrial

engineering certificate programs are taken to any industry and to any locality where sufficient registration is possible.

Educational television has brought increased opportunities to the state's citizens. The Extension Division sponsors televised lectures to supplement its correspondence courses over WUNC-TV.

North Carolina's School Philosophy

In common with other states of the South, North Carolina has had to face the school segregation problem. In this situation, Governor Hodges' objective has been (1) to preserve the schools and (2) to maintain law and order.

The Governor did not attempt to work out a broad philosophical program on race relations but, rather, went to work on a practical and realistic answer to the problem. He avoided the extremes on either side because he did not think the ultimate results of either extreme view — mass integration or wholesale closing of public schools — would be acceptable to the majority of North Carolinians.

Governor Hodges has sought to offer constructive leadership by clearly defining the problem, carefully explaining the alternatives, offering a reasonable answer to the alternatives and then letting the people make up their own minds about the matter. At the same time, he has left open the door in order that the people themselves could move in the direction they chose. To do this, recommended changes in state laws were made which permit the free exercise of choice at the local level by the people of the state.

The state's school assignment law does not limit applications from Negroes but allows local school boards to identify those children who are best qualified to transfer and who are honestly interested in transfer.

At a talk given before the Harvard Law School Forum at Cambridge in January, 1960, Governor Hodges gave a detailed report on what North Carolina had done and is doing about public school integration.

In his concluding remarks, he declared (and the truth of this has become increasingly more apparent in recent weeks): "I have said many times before that in my opinion the racial problem in America is not just a regional problem. It is a national problem. I have also said that the racial problem is not limited to the United States. It is in fact a world-wide problem.

"It is only natural that at this time and perhaps increasingly during the months ahead there will be discussion and argument concerning what the federal government ought to do, should not do, or what laws Congress should pass or should not pass with regard to the racial problem in public education.

"I'm sure you can understand," he added, "that I would hope that at least no action would be taken on the national level which would adversely affect the delicate balance we seem to have achieved in our state, which is permitting us to meet the individual problems as they arise and, as we hope, work out our solutions over a period of time."

Diversified New Projects

Diversity has been the keynote in North Carolina's industrial growth, and as you travel from the flat plains of the coastal and eastern parts of the state, on through the rolling land of the Piedmont and into the mountain areas of the west, you will see impressive evidence of varied new plants just completed or in the process of construction.

To give you an idea of what has happened here in recent months, here are some specific examples:

Union Carbide Chemicals Corporation announced in February this year that it will build a biological chemical laboratory at its Clayton Research Farm. To be completed in August, the structure will have 10,000 square feet of floor space and will have initial employment of 20 persons.

On the occasion of the announcement, Governor Hodges said the laboratory was "a welcome contribution to North Carolina's Research Triangle. The new laboratory clearly shows," he add-

Industrial research is steadily increasing in North Carolina. W. Rhett Berry, research microscopist at the American Enka Corporation's new laboratory at Enka, is shown using an electron microscope to study the internal structure of a synthetic fiber.

Hyperpure silicon is produced by DuPont at a plant in North Carolina's Transylvania County near Brevard. The $6 million facility, which requires the purest possible air and water for production, is in the middle of a tract of 11,000 acres of mountainous terrain. Kenneth Byrd, a physical tester, looks at a rectifier which is one of the end products using silicon.

Another one of the new enterprises in North Carolina is Fletcher Industries. It produces narrow fabric web looms at its Turner Division plant in Statesville. Edwin Egee, division manager (foreground), and Gordon Gedrick, plant manager, inspect the first loom produced at the Statesville facility before the machine is shipped.

ed, "that the direct benefits of the Research Triangle idea are not limited to a narrow area on the interior of the Triangle.

"Laboratories and united activities will spread out from the Research Triangle all over North Carolina."

At Rocky Mount, it was announced in March that Futorian-Stratford Furniture Company of Chicago will build a plant that ultimately plans to employ between 700 and 1,000 workers. It will have 320,000 square feet of floor space and will produce upholstered furniture. Raw materials used will include hardwoods grown in eastern North Carolina.

Already in production is the new operation at Henderson of Fram-Aire Corporation, a wholly-owned subsidiary of Fram, Inc., which is producing filters for the air conditioning and forced air heating industry. The company leased an existing building with 40,000 square feet of floor space and began with an initial employment of 62 persons.

It is interesting that a major part of the raw materials used are being purchased from the Carolina Bagging Company, a division of Textron, Inc., in Henderson. Carl Smith, general manager of the bagging firm, said this source of supply was instrumental in attracting Fram-Aire to Henderson.

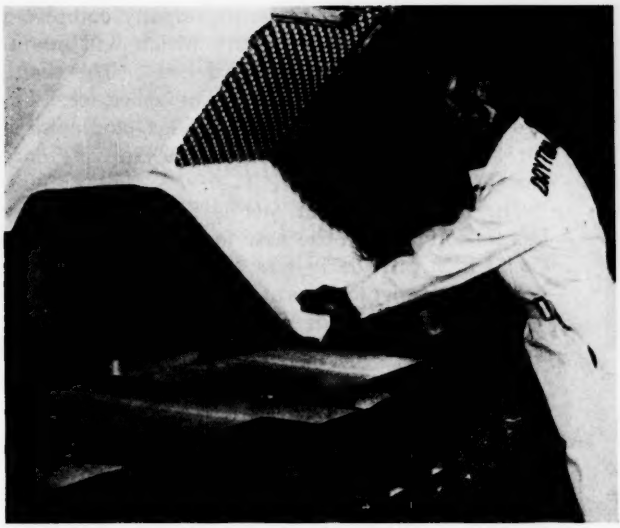
New in Shelby is a plant being built by the recently formed Shelby Seamless Hosiery Mill, Inc., a home organization. The concrete and brick structure will have 12,000 square feet of space, and operations were to begin in mid-summer.

Carolina Aluminum Company, Inc., has established at Winton a plant with initial employment of 25. It is expected that the number of workers will be increased to 150 within two or three years. Initial investment was approximately $500,000. Provisions for expansion when needed were included in the initial plans for the 24,000 square foot building.

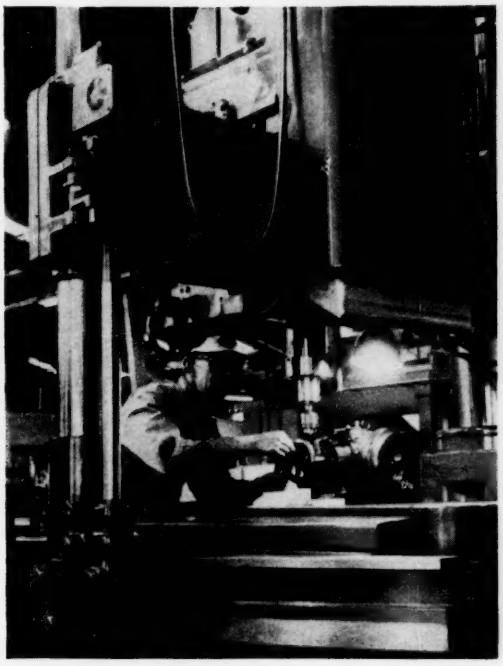
At Winston-Salem, there are substantial expansion programs underway at R. J. Reynolds Tobacco Company, Hanes Hosiery, and Western Electric Company. Reynolds is constructing a new $30 million cigarette factory and also a new aluminum foil plant. Hanes is building a huge new hosiery plant which will employ an additional 4,000 workers. Western Electric expects to house 1,500 employees in a new office building now under construction.

A further outstanding example of diversity is the new corn starch manufacturing plant at Plymouth. The new installation, plans for which were announced in March, will represent an investment of $8 million and will be the first of its kind in the entire South.

The plant will produce about 80,000 tons of industrial corn starch annually from the approxi-

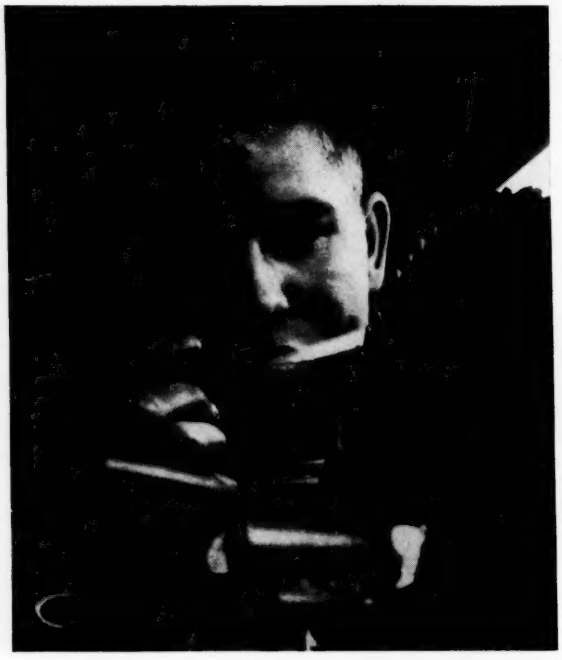


A new expansion at Dayton Rubber Company, Waynesville, has resulted in the production of foam rubber T-cushions for use in furniture. An employee is shown removing a cushion from a rubber press. The plant also produces a wide variety of other products.



Amcel Propulsion, Inc., is a brand-new company which was formed by Celanese Corporation of America after it purchased the Oerlikon Tool & Arms Corporation's plant near Asheville. The new company will coordinate the manufacturing, research and production of a comprehensive missile program for Celanese. R. S. Carroll, chief machinist, works at a jig boring machine for precision layout. The plant includes a 1,300-acre tract with test range, manufacturing facilities and laboratory.

The new $3 million plant of Swift & Company at Wilson is now in full production. Eastern North Carolina, a great agricultural area for tobacco and other crops, is now expanding rapidly into production of livestock and grain and offers other opportunities for the development of industry utilizing agricultural products.



A new small industry at Statesville, Carbi-Service, Inc., has taught a new skill to this young employee, Fred Rydberg. He is hand-brazing carbide tips on a rip-saw blade.

mately four million bushels of corn it plans to purchase annually in eastern North Carolina. The company, Dixon Southern Chemicals, Inc., will give jobs to some 60 people, plus bolstering the income of farmers who till the 100,000 acres of land needed to produce the corn that will be used.

An important new expansion was that undertaken in western North Carolina, in Buncombe County, by American Enka Corporation. With 4,400 employees, the company has been operating in the area for 30 years.

The major project currently in progress is an addition to Enka's nylon plant, which will double production capacity. To be completed late in 1960, the expansion will provide several hundred additional jobs.

Significant, too, is the fact that Enka has chosen to move its headquarters from New York City to its North Carolina location. A large, three-story administrative office at the plant site was completed in April, and the firm's top management has been centralized there.

Other expansions now in progress include an enlargement of the Enka Lake Club, construction of a building to manufacture nitrogen for the nylon plant, an addition to the power house, and preparation of a new parking lot.

Also in the field of new expansion is the establishment at Waynesville of new roller production facilities at the plant of Dayton Rubber Company. The new facilities are used to make a wide variety of synthetic and natural rubber-covered rollers for the graphic arts, textile dyeing and finishing rolls, steel mill rollers and general industrial rollers. Other products made at the plant already include latex foam furniture cushioning, mattresses and pillows, plus a wide variety of products for the industrial and automotive fields.

At Charlotte, Duff-Norton Company completed in June a huge new structure which will manufacture a variety of jacks and hoists. The plant, with 168,000 square feet of floor space, cost approximately $1 million. It provides employment for 350 persons and an annual payroll of more than $1.25 million.

The most significant fact is that the company has consolidated in the new facility the jack division which previously was at Pittsburgh and the hoist division which was at Danville, Illinois.

Duff-Norton President Walter I. Floyd said that extensive studies showed them consolidation of their two divisions would be the most feasible way to carry out expansion plans. He said several southern areas and cities were considered before North Carolina and Charlotte were decided upon.

Among the recently established new plants that are now in full production is that of Swift & Company at Wilson.

Hazel Swann inspects a small synchro (left) and small motor generator which are produced at the $1.25 million electronics components plant of Kearfott Company, Inc., near Black Mountain. Many of these component parts are used for guidance systems for missiles and other defense uses.

Rounding out in January, 1960, its first full year of operation, the Swift plant is on a tract of 59 acres. From the surrounding area it receives hogs, cattle and calves for processing.

Concerning the big operation, Plant Manager Dallas D. Miller said: "Swift has come a long way toward its goal of participating in a new era in North Carolina food processing, serving livestock producers, and contributing to the general economic well-being."

He added that his company looks upon its location and operation in North Carolina as an outgrowth of several factors including an increased consumer demand-market in the Southeast, potential for increased agricultural production, and a good supply of dependable workers.

Another operation important in the state's industrial-agricultural picture is the plant near Asheville of Gerber Products Company. The plant, which cost $3 million, began processing in October, 1959, of Carolina apples, sweet potatoes and carrots.

Custards and soups plus numerous other vegetables and fruits are also being cooked and canned in the plant's 126,000-square-foot kitchen.

John W. Erichson, manager of the baby food facility, said that before the end of 1960 the installation would be packing practically all of the Gerber varieties to be sold in seven Southeastern states.

Adjacent to the plant is a $100,000 warehouse. But, Mr. Erichson said, this soon will be inadequate, and plans are now on the drawing boards for a substantial addition.

Huge retorts are used to cook the baby foods at the new Gerber Products Company plant near Asheville. The retort operators are Donald Crisp (left) and John Dockins. Neither had worked previously in a food plant. The Gerber facility is another one of the growing number of plants in North Carolina utilizing the agricultural products of the state.

The most important aspect of such plants as those of Swift and Gerber, as well as the new starch operation, is that it represents an important and continuing pattern of the blending of agriculture and industry in the state.

Because North Carolina has a wide variety of soil, climate and growing seasons, it can grow just about all crops and vegetables. Since this is true, the state offers many more opportunities for further development of good processing operations.

Eastern North Carolina is a major producer of peanuts. As a result of this, the Seabrook Blanching Company has established a new plant for the custom blanching of peaunts at Edenton. James W. Gardner (left), president of the company, inspects one of his blanching machines with Keith J. Reeve, general manager. This is the only plant of its kind in the world.

A Strong Industrial Background

These examples of new industry in North Carolina are representative of what is occurring in literally every part of the state. But, it must be remembered that the inherent favorable factors which are luring industry in today also have attracted manufacturing enterprises to North Carolina all during the state's history.

For example, the state has been tops in the nation for years in the manufacture of textiles. The total value of textile products made in North Carolina is about $2.8 billion annually, and textile operations employ about 230,000 persons.

Textile mill employees, executives and owners receive incomes totaling $700 million annually, or about 14 per cent of total income payments among North Carolina residents.

With this leadership in textiles, North Carolina can also lay claim to having the world's largest textile research center affiliated with an educational institution.

Mrs. Lila Kiser, rsearch assistant, checks the controls of the cobalt-60 facility in the Textile Research Center of North Carolina State College. Cobalt-60 is a source of gamma rays that are used in the laboratory to bombard various textile materials under study at the college.

This is the Textile Research Center in the School of Textiles at North Carolina State College. Textile giants throughout the nation not only have placed graduates of the School in key positions but also large and small textile industries are supporting research at the School to the tune of $500,000 annually. The School of Textiles is 98.2 per cent industry supported. With the expansion plans now being activated, it is anticipated that the research program at the School of Textiles alone can reach a volume of $1 million in the next five years.

In addition to holding top place in textiles, North Carolina also leads in the manufacture of tobacco products. The approximately 100 tobacco plants in the state employ more than 47,000 persons, and total output value is around the $2 billion mark.

Another high ranking industry here, and one that is continuing a rapid expansion, is the manufacture of paper.

More than 12,000 persons are employed in pulp-paper operations here, and the value of output is around $350 million annually.

The mills are distributed all over the state, along the coast, in the Piedmont and in the mountain areas. Among the big operations here are Champion Paper & Fiber Company at Canton and Waynesville, Riegel Paper Company at Acme, Halifax Paper Company and Albemarle Paper Manufacturing Company at Roanoke Rapids.

North Carolina also has several plants making specialty papers. One of these is Ecusta in Transylvania County which is the world's largest producer of cigarette paper.

The others include other such well known names as Mead, Sonoco, International, Container Corporation of America, Old Dominion Box Company and many more which attest to the broad extent of pulp, paper and container production in North Carolina.

North Carolina also is famous for its furniture manufactures which date back well before the turn of the century.

Employment in the state's furniture industry averages around 39,000 to 40,000, and output value is approximately $340 million annually.

The city of High Point is considered to be the center of the Southern furniture and is the location of the Southern Furniture Exposition Building. Thousands of buyers from all over the nation as well as from foreign countries are attracted to the city each year to the winter and summer markets, in January and July, as well as to the mid-season markets in April and October.

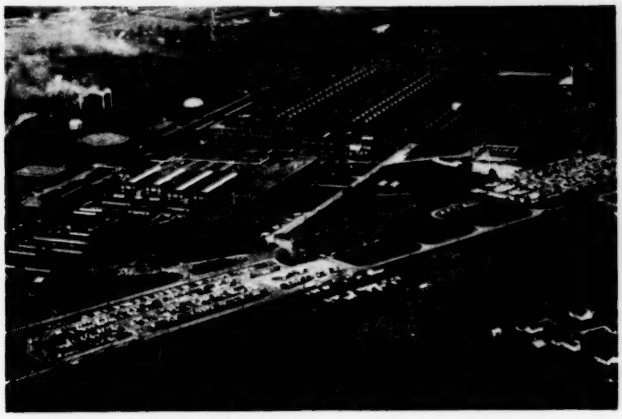
In the over-all industrial picture, figures in the 1960 Blue Book of Southern Progress show that North Carolina has a total of 7,300 manufacturing establishments which employ 505,000 persons and produce goods having a total output value of $9.161 billion.

Further evidence of the rapid expansion of industrial activity here may be seen by comparing figures of just a few years back. Total output value of manufactured goods in 1954, for instance, was $6.383 billion, and in 1947, $4.148 billion.

As a corollary to commercial and industrial expansion, North Carolina has had an impressive growth in its banking system.

A report by the state's Commissioner of Banks shows, for example, that as of October 6, 1959, the total resources of North Carolina banks

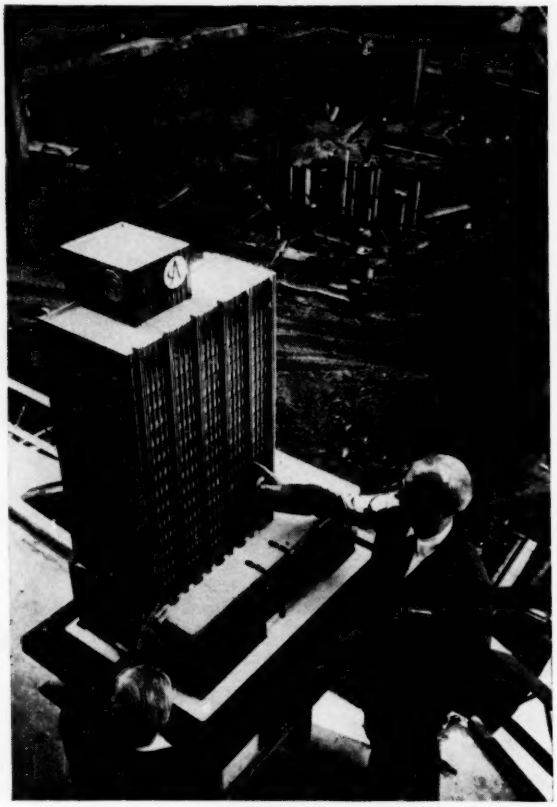
A landmark at Thomasville, this huge chair symbolizes the leadership of wood furniture production in North Carolina. Seven high school girls, with the help of a fire ladder, climb up for a "high chair" view of their home town. The state's furniture industry provides employment for between 39,000 and 40,000 persons.



Continuing expansion is under way at Olin Mathieson Chemical Corporation's Ecusta paper and film divisions at Pisgah Forest. Ecusta recently installed a $6.5 million fine paper machine said to be the largest of its kind in the world. The plant has 2,500 full-time workers and an annual payroll of $12 million. Ecusta produces cigarette paper, as well as cellophane, polyethylene, cigarette filters, and a new improved light weight printing paper.

Judi Klipfel, the current Miss North Carolina, proves the point that textiles, tobacco and pretty girls are plentiful in the state. Here she models Cone Mills' deeptone denim red jeans made by Blue Gem of Greensboro, and a red and white checked shirt of Conedri, another Cone fabric, made by Anvil Brand of High Point.

The new plant at Greensboro of P. Lorillard Company is one of the world's most modern cigarette manufacturing plants and is typical of the continuous progress and growth of tobacco processing operations in North Carolina. The state produces 40 per cent of all tobacco grown in the United States, and the output of its tobacco plants constitutes 58 per cent of all tobacco products manufactured in the nation.



Banking is growing rapidly in North Carolina, along with industrial and commercial expansion. Here President Addison H. Reese (right) and Senior Vice President C. B. Campbell of the American Commercial Bank examine a model of the bank's new 18-story headquarters building under construction in background at Charlotte. American Commercial has announced plans to merge with the Security National Bank of Greensboro which will create the fourth largest bank in the Southeast.

amounted to $3,027,291,868, which was an increase of more than $198 million over the September 24 figure for the previous year.

At present there are 154 state-chartered banks in North Carolina, operating 356 branches. Of this number, four are members of the Federal Reserve System, one is an uninsured institution, and the remaining 149 are insured by the Federal Deposit Insurance Corporation.

In the capital city of Raleigh alone, combined resources of the banks here come to a massive total of $1.458 billion. In a recent speech, Governor Hodges pointed out: "Taking this total combined resources figure at face value, Raleigh can — with some rationalization — claim that its bank resources are the largest of any single community between Baltimore and Atlanta."

To the site seeker this means that the people of North Carolina are in an excellent position to finance industrial growth and are also enjoying the kind of prosperity that means good customers for an infinite variety of goods and services.

What They Say About North Carolina

We can all remember the slogan "Ask the Man Who Owns One" which was used for many years by an automobile manufacturer. Likewise, if you want to get the pitch on location factors in North Carolina, just ask the man who has a plant here.

President Fritz Jensen of Southern Screw explains that the state was picked for his plant because the surrounding furniture industry provided a ready-made market for metal fasteners. Production increased rapidly, he said, because trainees were quick to acquire needed skills, and North Carolina's accessibility has greatly facilitated distribution. The number of employees at the plant has increased from 14 in 1946 to more than 800 now, and an inventory of 1.5 billion fasteners is now maintained at the plant.

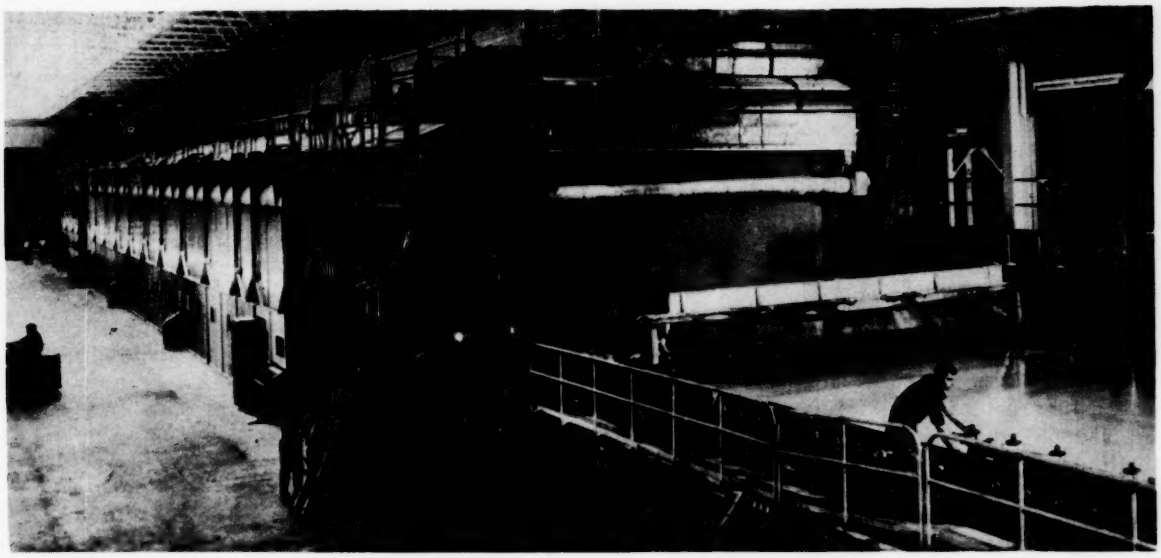
Giving reasons why North Carolina was selected by Pittsburgh Plate Glass for a plant, General Manager R. A. McLaughlin of the Fiber Glass Division cited the area's "tremendous enthusiasm, proximity to markets, excellent supply of qualified workers, and cooperation of state and local governments."

President Daniel F. Gerber of Gerber Products comments: "We like our new North Carolina home. We considered many factors, most important of which was the available supply of fresh quality produce. The demand of the growing Southeastern market and the assured produce supply due to ideal agricultural conditions in North Carolina simplified our location problem."

F. E. Herbert, Jr., executive vice president of Kearfott Company, Inc., says: "Employees are of exceptionally high caliber, with a manifest desire to maintain a high level of efficiency, productivity and product quality." The Kearfott plant at Black Mountain, which produces precision electrical components for the jet and missile age, is another example of the diversity of industry in the state.

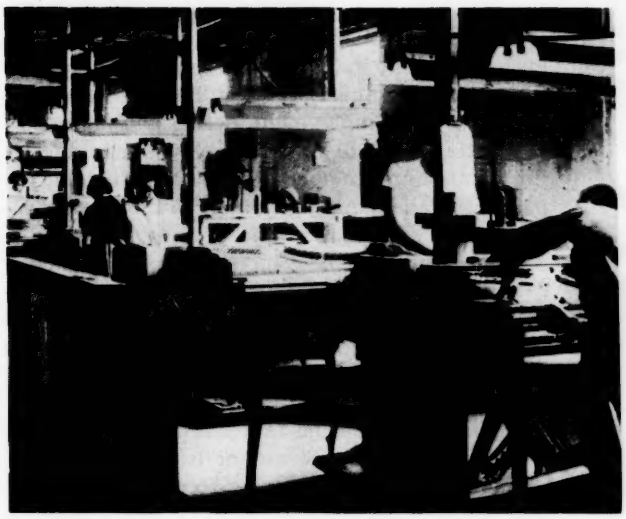
At Durham is the Wright Machinery Company Division of Sperry-Rand, and Harry F. Vickers, president of the latter, stated that, "These North Carolinians have a proved record of meeting the most exacting requirements."

A similar observation was made by J. A. Babcock, manager of the Westinghouse Electric Corporation plant at Raleigh. Pointing to the fact that in less than two years after the plant was opened in 1953 the one-millionth meter was produced there, he said: "Frankly, this production record is somewhat remarkable in view of the fact that the majority of our employees had never before worked in industry. Their ability to adapt to training in learning industrial skills has been



This is the huge new No. 20 machine in the Champion Paper and Fibre Company's Carolina Division plant at Canton. The machine is 400 feet long, is housed in a building covering more than two acres, and it can turn out a sheet of paper nearly 20 feet wide and 545 miles long every 24 hours. With more than 300 employees, the Carolina Division plant has an annual payroll of $18 million.

Deutsch Company, a producer of miniature electronics connectors for the aviation industry, is the first electronics plant of its type to locate in Eastern North Carolina. It is operating at a de-activated airbase at Kinston. Ray Petty, plant manager, is shown giving instructions to Mrs. Jennifer Ritchie (left) and Mrs. Helen Nunn.



An interesting industry in North Carolina is piano production. At Granite Falls is the plant of Kohler and Campbell, Inc., which has 150 workers drawn from this furniture and wood-working area of the state. The company moved its administrative, sales and manufacturing to North Carolina after operating for 58 years in New York City.

a highly rewarding experience for all concerned."

One of North Carolina's most enthusiastic supporters over a long period of years was the late Reuben Robertson, Jr., president of Champion Paper & Fiber, who met an untimely death in an automobile accident this past March.

Champion started a new operation at Waynesville in October, 1959, with one shift, and this was gradually increased to an around-the-clock operation. In a speech before the Waynesville Chamber of Commerce in February, 1960, Mr. Robertson said: "We consider Waynesville to be one of our very real growth centers, and I can assure you that we consider the fine people of this area as the real keystone of human resources and skills upon which we can confidently build in the future."

He revealed that the company already was making plans for an addition of 18,000 square feet to the Waynesville plant where it will install a polyethylene extrusion laminator which will enable Champion "to forge ahead in the plastic coated paper field . . ."

An AAA Bond Rating

In our visit to the office of North Carolina State Treasurer Edwin Gill we were told that the state has "a long record of sound fiscal policy, and it makes a habit of good government."

Recognition of the soundness of the fiscal policy is shown in the fact, Mr. Gill emphasized, that the quality rating of North Carolina bonds is at its highest point in history.

The rating was raised by Moody's Investors Service from AA to AAA, and this is the highest such rating given by Moody's, an organization whose judgment is recognized nationally as reflecting the quality of all types of bonds.

"We feel," Mr. Gill said, "that this action reflects nation-wide confidence in North Carolina's sound government and stable fiscal policy."

Discussing the corporation tax, Treasurer Gill reminded that in 1957 the General Assembly changed the method of determining what portion of a multi-state corporation's total income is attributable to its North Carolina activities (as distinguished from its activities in other states) and therefore taxable by North Carolina. The corporate tax rate is a flat 6 per cent, the same as it was before the enactment of the new formula, but the change resulted in more equitable and lower taxes.

"These changes have been hailed both within and without the state," Mr. Gill said, "as a progressive move that bids fair to yield substantial dividends in new industries and in the expansion of those already here."

Generally speaking, according to Revenue Commissioner James S. Currie, the fiscal policy of North Carolina has long been to provide good quality of governmental services in relation to the ability of the economy to support them and to administer the programs efficiently and economically, supported by a tax structure which is fair and reasonable.

"This has been done," he explained, "by the use of a rather large variety of different levies maintained on a relatively stable basis for the past 25 years but consisting of a sufficient number of levies attuned to economic growth to provide additional revenues in pace with an expanding population."

160,000 Available for Jobs

Once predominantly farm-employed, the North Carolina labor force is now 73 percent non-agricultural. This fact was revealed in a recent study of the labor supply situation made by the North Carolina Employment Security Commission.

This survey also shows that the state's non-farm labor force has been steadily increasing at the rate of 20,000 annually during the past 10 years. At the end of 1958 there were over one million persons employed in non-agricultural jobs.

In addition, this study reveals that there are about 160,000 people who are available for training and employment by new industry. This existing labor supply is predominantly either semi-skilled or unskilled but, from reports by executives of new industry, are easily and readily trained. About one-third of these people are workers with recent industrial job experience, reports the director of the Bureau of Research and Statistics of the Employment Security Commission.

Workers in all of North Carolina's manufacturing plants number about 480,000, a sufficient, experienced labor supply available to staff new manufacturing plants. Also, the present growth rate of jobs created by new industry is not sufficient to utilize the annual influx of youths coming into the labor force and the labor resource remains rather constant from year to year. This trend assures the new plant of a continuing high level of labor supply.

Significantly, the constant mechanization of the state's farms will free an increasing number of people for the non-farm labor force. Although the proportion of people engaged in farming has gradually dropped as farms become more mechanized, agriculture is still basic in the state's economy

P. C. Ashley (right) of Ashley Welding and Machine Company, Edenton, discusses a problem with John White, Johnny Twine, Mack Dunlow and Robert Cherry. The latter four are all skilled welders who were farmers before being employed and trained by Mr. Ashley. They typify the high calibre of workers available in the state. The Ashley company fabricates tanks of aluminum and stainless steel for nitrogen liquid fertilizer.

and the balance between industry and agriculture is certainly favorable.

Characteristically, this increasingly industrial labor force comes from an agrarian background with a tradition of individualism and independent thinking and is overwhelmingly un-organized as far as unionism is concerned. Total union membership in the state constitutes only about 10 percent of the total non-farm employment — one of the lowest rates in the country.

Becoming more important in today's labor picture are "Right to Work" laws. And a signal aspect of North Carolina's labor situation is the state's Right to Work law that was passed by the General Assembly in 1947.

This forceful piece of legislation has been described as: "An act to protect the right to work and to declare the public policy of North Carolina with respect to membership or non-membership in labor organizations as affecting the right to work: To make unlawful and to prohibit contracts or combinations which require membership in labor unions, organizations or associations as a condition of employment: To provide that membership in or payment of money to any labor organization or association shall not be necessary for employment or for continuation of employment and to authorize suits for damages."

North Carolina has an outstanding record of peaceful labor-management relations. A state law in 1941 set up a Voluntary Arbitration Service which may be used to settle disputes when jointly requested by the parties involved. Since the enaction of this law, only seven-tenths of one percent of the nation's man-days idle as a result of strikes have occurred in North Carolina.

The 160,000 North Carolinians that make up the Estimate of Labor Resources in North Carolina for Industrial Development published by the Employment Security Commission fall into three broad categories:

(1) The unemployed, those reporting weekly for unemployment insurance.

(2) Those under-employed, including individuals having either part-time work, only seasonal jobs or fill-in jobs while waiting an opportunity to enter industrial employment.

(3) Individuals who, though not technically unemployed, would accept employment if favorable job opportunities existed in their community or in a reasonable commuting distance of it.

The insured unemployed group numbers just under 40,000. The remainder of the 160,000 are divided between the under-employed and the new entrants to the labor force, with the majority coming from the new entrants.

A Sound and Growing Utility Structure

Utility services are, of course, one of the basic

ingredients of success in area development. Thus, from the success North Carolina has enjoyed in luring new industry, it should be evident that the state offers a sound utility structure.

Electric power service is provided by several strong companies, each of which has displayed a determination to anticipate future needs and build to meet them. In the Central and Eastern sections, service is provided by Carolina Power and Light Company, with headquarters in Raleigh. The bulk of Western Carolina is served by Duke Power, based in Charlotte; and a chunk of the Northeastern section receives energy from Virginia Electric and Power, with main offices in Richmond.

All of these firms have aggressive development departments which will welcome your inquiries and give them prompt attention.

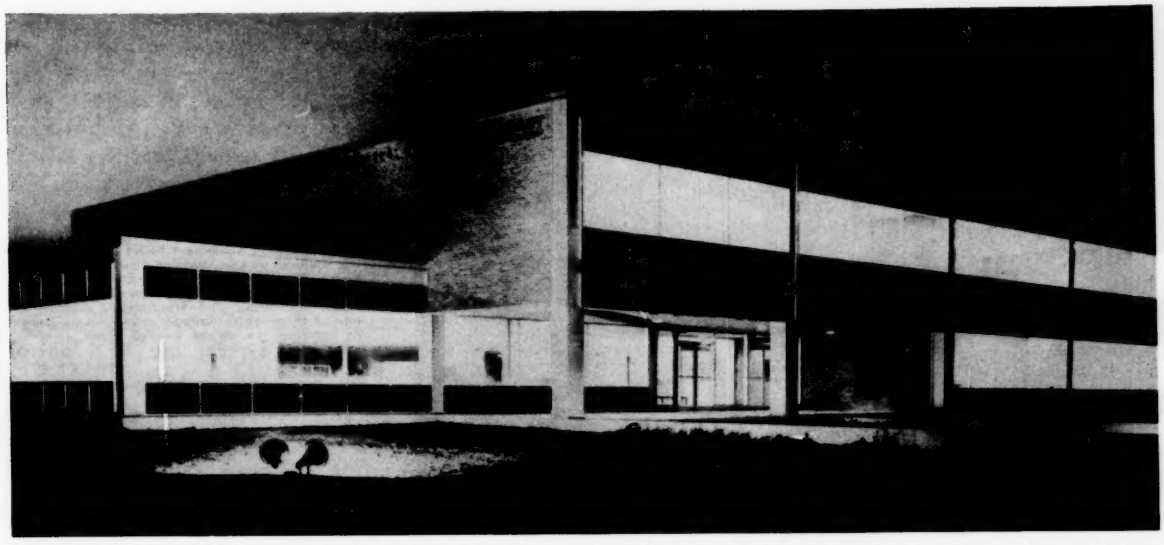
CP&L's growth record shows what utilities in the state have been doing to meet industrial development needs. Almost every year the company has added a large new generating facility: in 1949 the first unit of a 68,000 hp station near Lumberton; in 1950, a 68,000 hp unit at Weatherspoon; in 1951, first unit of a 100,000 hp plant near Goldsboro; 1952, a third unit of 104,000 hp at Weatherspoon and second unit of 100,000 hp at Goldsboro; 1954, initial unit of 150,000 hp near Wilmington; 1955, a second unit, also 150,000 hp, at Wilmington; 1956, a fifth unit of 188,000 hp at Cape Fear; 1958, a sixth unit of 234,000 hp at Cape Fear and new 250,000 hp plant near Hartsville, S. C.; 1959, new 30,000 hp hydro unit near Mt. Gilead.

More recently, CP&L has announced plans for a $20 million expansion of the Goldsboro plant. President L. V. Sutton says the unit will be in operation by mid-1962.

Duke Power has likewise devoted major resources to physical expansion. A few months ago work began on the company's Cowan's Ford dam across the Catawba River in Mecklenburg and Lincoln Counties. The mile-long concrete and earth-fill structure will cost some $60 million — testimony to the vision of private enterprise in this area.

According to a publication of the Piedmont and Northern Railroad, the Cowan's Ford project will complete the development of the Catawba which has frequently been called "the most electrified river in the world." The hydro-electric powerhouse, to be located on the Lincoln County side, will have an initial generating capacity of 262,500 kilowatts. Ultimately the plant will have a ca-

Governor Hodges breaks ground with a charge of dynamite on Duke Power Company's newest project, the 33,000-acre lake to be impounded behind Cowan's Ford dam near Charlotte. The huge installation ultimately will have capacity of 350,000 kilowatts and represent an investment of more than $60 million. Other power companies in the state also have a continuing building program to assure dependable power for expansion of existing industry and for new plants in the future.



The new headquarters building at Durham of General Telephone Company of the Southeast is symbolic of the growth in communications facilities in North Carolina. As of February 29, 1960, there were approximately 1,108,000 telephones in service in the state, and the companies serving the state have a continuing program for providing ever-expanding facilities.

pacity of 350,000 kilowatts, an output which approaches the combined capacity of the other ten dams on the river.

An important by-product of this mammoth hydro-electric project will be Lake Norman, the artificial body of water which will be impounded by the dam. The new lake will be 33.6 miles long and as much as eight miles wide at its widest point. It will inundate 32,510 acres of land and have an irregular shoreline of more than 400 miles.

Duke Power Company plans to develop Lake Norman for recreational purposes in much the same fashion as other lakes in the Catawba system have been developed. As large as it will be, the new lake has the potential of becoming the outstanding playground area of the Piedmont Carolinas. There is some possibility that part of its shoreline will become a State park.

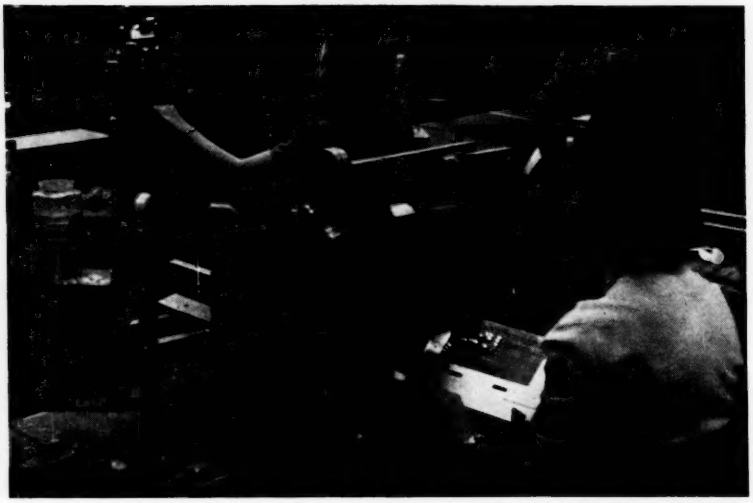
The Power Company has been planning the big project for several years and some preliminary work, such as clearing trees and undergrowth from the lake area, has already been done. Officially, however, the actual dam construction began when Governor Hodges set off the first charge of dynamite on last September. This climaxed a colorful groundbreaking ceremony attended by several hundred company officials, governmental and civic leaders, special guests, and the general public.

Virginia Electric and Power is by no means taking a back seat in the expansion race. The company has already invested very heavily in North Carolina and another big program is set. An application before the Federal Power Commission for a $50 million hydro station on the Roanoke River near Littleton, N. C., has just been approved.

To be called the Gaston station, this project will take about three years to build and will add about 200,000 kilowatts to the energy reservoir in this part of the state. The dam will be situated only eight miles upstream from Vepco's Roanoke Rapids dam.

A submerged dam, to skim off the high quality surface water of the lake, will be constructed in front of the main dam around the intake to the water wheels. This submerged dam will rise to within 15 feet of the water surface. A similar structure already exists at the downstream Roanoke Rapids station. These two submerged dams, costing approximately $1,000,000, will assure the discharge of high quality water from the Roanoke Rapids station for the benefit of aquatic life and continued industrial growth in the lower Roanoke River basin.

Unlike other hydroelectric developments in the Roanoke River basin where seasonal variations in reservoir level may be as much as 25 to 60 feet, the Gaston reservoir level will vary less than one foot under normal operating conditions. The reservoir will be an ideal recreational facility for fishing, boating and associated water sports. Stretching upstream for 34 miles, the lake will be over a mile wide at many points, and will contain 20,300 acres of surface area. The 350 miles of shore line will afford exceptionally desirable residential



Skilled workers assemble component parts for communications equipment being manufactured at the Kellogg Communications Division of International Telephone and Telegraph Company at Raleigh. It was recently announced that the Telephone Instrument and Transmission Department, one of three major Kellogg operations, will have its headquarters at the Raleigh plant.

property around the lake. The lake will lie within the boundaries of Halifax, Warren and Northampton counties in North Carolina and Brunswick and Mecklenburg counties in Virginia.

Looking farther into the future, the three aforementioned firms, with South Carolina Electric and Gas, have organized Carolinas-Virginia Nuclear Power Associates, Inc., with headquarters in Charlotte, to undertake a nuclear development program. REA programs are also widespread in North Carolina — the state ranks second in number of electrified farms.

Natural gas is experiencing similar expansion in the state. Basic source, of course, is the gas-producing area of Texas and Louisiana, with main supplies being brought in by pipeline. Transcontinental Gas Pipe Line Corporation has a North-South line through the Piedmont section, with laterals to population centers in the Central and Eastern parts of the state.

The companies listed below sold approximately 30,000,000 Mcf of gas for the year ending December 31, 1959. The cities which these companies serve are listed under the particular company.

Carolina Natural Gas Corporation: Hickory, Conover, Newton, Granite Falls, Longview, Lenoir, Lincolnton, Maiden, Morganton and Valdese.

North Carolina Nautral Gas Corporation: Norwood, Albemarle, Wadesboro, Rockingham, Hamlet, Laurinburg, East Laurinburg, Aberdeen, Southern Pines, Raeford, Red Springs, St. Pauls, Lumberton, Lillington, Erwin, Dunn, Benson, Goldsboro, Tarboro, Farmville, Roseboro, Salemburg and Clinton.

North Carolina Gas Service, Division of the Pennsylvania & Southern Gas Co.: Reidsville, Leaksville, Spray, Draper, Madison and Mayodan.

Piedmont Natural Gas Company, Inc.: Burlington, Graham, Charlotte, Greensboro, High Point, Salisbury, Spencer, East Spencer, Winston-Salem, Thomasville, Asheboro and Randleman.

Public Service Company of N. C., Inc.: Raleigh, Durham, Chapel Hill, Cary, Concord, Kannapolis, China Grove, Statesville, Troutman, Mooresville, Davidson, Cornelius, Gastonia, Dallas, Lowell, McAdenville, Belmont, Mount Holly, Cramerton, Bessemer City, Forest City, Spindale, Rutherfordton, Fletcher, Asheville, Ranlo, Landis, Sanford, Pittsboro, Oxford, Henderson, Creedmoor, Butner and Hester.

Tidewater Natural Gas Company: Wilmington, Fayetteville, Kinston, Washington and New Bern.

Carolina Central Gas Division of the United Cities Gas Company: Hendersonville and East Flat Rock.

Municipalities: Lexington, Kings Mountain, Shelby, Monroe, Wilson, Rocky Mount and Greenville.

North Carolina is principally served by 35 Commercial Telephone Companies. These Companies provide local and long distance service in 330 Exchanges in the State. More than 98 percent of the telephones in the State are of the dial type. A network of toll facilities owned by the Bell System and the other Companies interconnect all Exchanges in the State as well as its interstate toll facilities.

As of February 29, 1960, there were approximately 1,108,000 telephones in service in North Carolina. Based on an estimated population fig-

ure there is one telephone for every 4.2 person in the State. The increase in the number of telephones for the year 1959 was 8.7 percent compared to an increase in 1958 of 7.44 percent. There are a large number of Towns in the State that have provided Direct Distant Dialing for its customers and many other Towns are scheduled for this type operation.

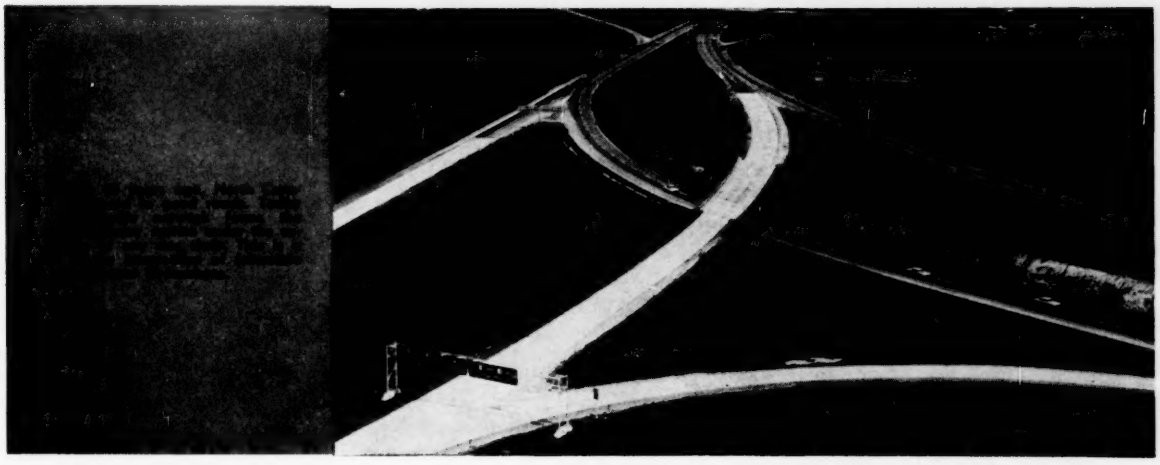
Major service is by Southern Bell Telephone and Telegraph, which has an impressive growth record. Here are some important milestones in the company's North Carolina expansion program during 1958 and 1959: Facilities making possible customer dialing of long distance calls to many cities throughout the nation were provided for the first time, and the Company's symbolic 6,000,000th telephone in the South was installed in Raleigh.

tem which is constantly being improved and extended.

During the past year $73.961 million was invested by North Carolina for highway improvements. The total expenditures went for more than 1,000 miles of contract roadway, including rights-of-way, landscaping and engineering costs.

Interstate projects let out on contract during the year amounted to $30.067 million, while primary and secondary construction projects totaled more than $27.472 million. Betterment and retreatment costs came to $2.560 million. The remainder was spent on right-of-way engineering.

A total of $135 million in contract values was active some time during 1959. However, some of these contracts were let in 1958. For most of the year, North Carolina maintained a second place position in the national ranks in the construction



In order for telephone service to keep abreast of North Carolina's increased industrial and residential growth during the coming year, $28,850,000 will be spent during 1960 to expand and improve telephone facilities in North Carolina. The largest single expenditure in the 1960 plans is for construction and equipment in connection with a direct distance dialing center in Charlotte. This project, already underway, is scheduled for completion in early 1961. A similar center near completion in Greensboro will be placed in service in 1960. In the 1960 expansion program, it is expected that North Carolina will add 51,500 telephones in the areas served by Southern Bell.

$73 Million for Highways in '59

Contributing materially to North Carolina's industrial growth is its outstanding highway system which is constantly being improved and extended.

of Interstate roads. In 1959 there were 41 interstate contracts active on 223 miles of the 775-mile system, for a total contract value of approximately $38.946 million.

Some 37 interstate contracts were brought to completion for a contract length of 133 miles and $20.468 million in contract value.

It is planned that in 1960 the Highway Department will open 164 miles of additional interstate roads to traffic, bringing the grand total available for use to about 220 miles.

Also during 1959 some 610 bridges were rebuilt or replaced, involving actual construction of more than four miles.

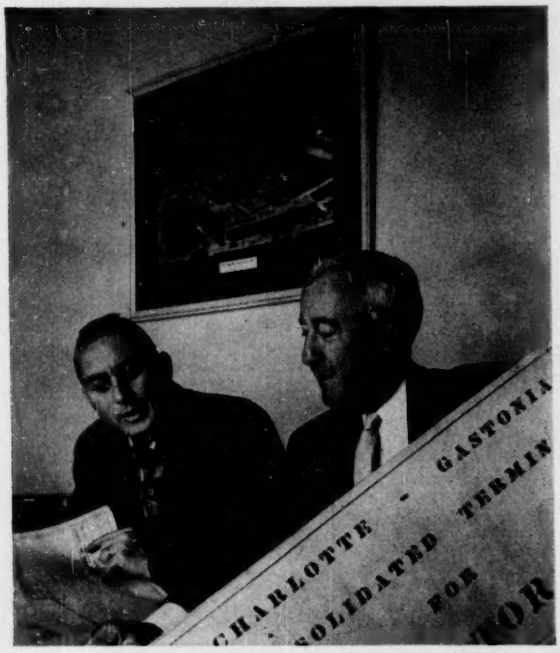
This continuing pattern of improvement is in line with the approbation that North Carolina won more than two decades ago as "the good roads state."

Insofar as the Federal Interstate System is concerned, North Carolina is particularly fortunate in having highways in the system criss-crossing the state in such a way that no part of it is very far away from a major east-west or north-south route.

A Huge System of Motor Carriers

E. A. Hughes, Jr., director of motor passenger transportation for the North Carolina Utilities Commission, reports that there are 595 regulated motor freight carriers operating in the state. This includes 32 regular route common carriers, 489 irregular route common carriers and 74 contract carriers.

"The types of services rendered by these carriers," Mr. Hughes said, "include the transportation of every commodity conceivable, to and from every city, town and community within the state."



Motor transport is a major industry itself in North Carolina. Akers Motor Lines of Gastonia is typical long-lines operation serving the Eastern Seaboard. President John M. Akers (right) discusses construction plans for a new $1.8 million terminal at Charlotte with Harold Huffstetler, superintendent of over-the-road operations.

Mr. Hughes said also that North Carolina lays claim to having one of the most efficient motor passenger transportation systems in the entire nation, with virtually every community being served with frequent bus schedules.

Currently operating in the state are 76 regulated motor passenger carriers. The total includes 61 common carriers and 15 contract carriers. All the larger lines including Greyhound and Trailways operate interstate and offer through interstate service to many distant points and have direct connections to all areas of this country, as well as Mexico and Canada.

Supplementing these transportation facilities are the main lines of six major railroads interlacing the state and providing transportation for goods and raw materials in and out of North Carolina to points all over the nation and Canada.

The major lines are the Atlantic Coast Line, Southern, Norfolk Southern, Seaboard Air Line, Clinchfield and Norfolk & Western. These and 22 other important lines have a total of 4,515 miles of track in North Carolina.

Commercial air transportation is provided for the state by Capital, Eastern, Delta, National, Piedmont and Southern lines. All the principal cities have or are close to commercial airports, and scattered throughout the state are small municipal airfields and landing strips for private and executive flying.

Since its eastern boundary is on the Atlantic Ocean, North Carolina has the advantage of deep water ports for coastwise as well as international shipping.

Created by an act of the North Carolina General Assembly in 1945, but without facilities until 1952, the N. C. State Ports Authority represents a $12 million investment which handles thousands of tons of cargo annually. When current expansion programs are completed, North Carolina will have invested over $15 million in terminals that will handle well over a million tons per year.

The State Ports Authority operates two state-owned deep water terminals — "Ocean Terminals" at Morehead City and "State Docks" at Wilmington. The Ocean Terminals at Morehead City are only three miles from the Atlantic, up a 30 foot channel. They are near Camp LeJeune and Cherry Point Air Station and are therefore utilized by the Marine Corps as a port of embarkation. At the Morehead City Ocean Terminals are storage tanks for liquid cargoes. Land is also leased to major oil companies, making Ocean Terminals a major handling agency for petroleum products. Tobacco exports form a major item of business so the terminals have installed the most modern fumigation plant on the South Atlantic. For 12 months each year, tobacco is shipped from both ports to all corners of the world. Ocean Terminals can accommodate four 500-foot cargo ships and one tanker simultaneously. The docks are served by the Southern Railway System and numerous trucking lines. The docks have an excellent grain loading facility, leased by Carolina

Grain Corporation and has a capacity to load out 250 tons per hour.

The "State Docks" at Wilmington have been designed for the handling of "general cargo," (such as dry, bulk products, including scrap steel, wood products, etc.) and features heavy lift gantry cranes, marshalling yard, switching engines and all other equipment needed for such operations.

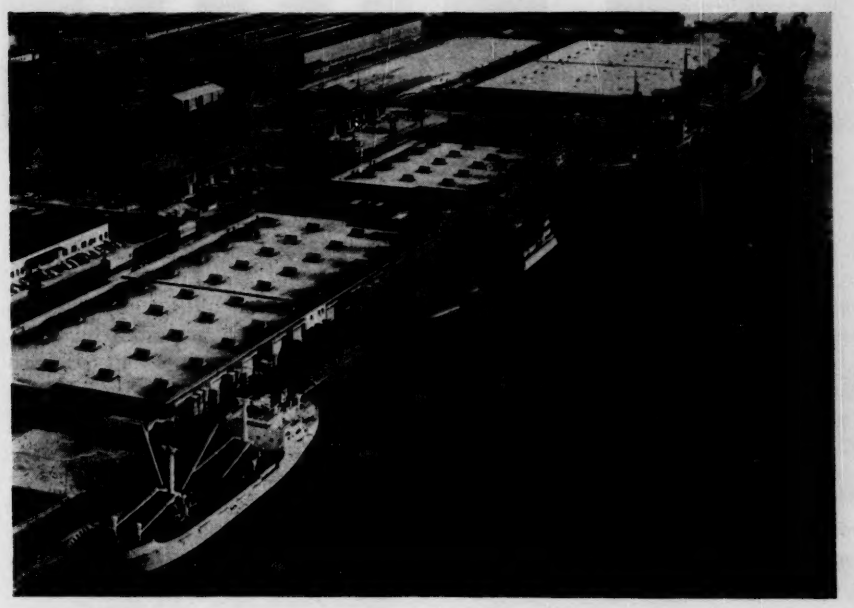
State Docks are located some 28 miles from the sea and can berth five 500-foot cargo ships at one time. The docks are served by the Atlantic Coast Line and Seaboard Air Line rail systems along with many major trucking firms.

Docks and warehousing at both North Carolina State ports are ultra-modern in design. Wide concrete aprons, 46 feet from transit sheds, enable cargoes to move directly from rail cars or trucks to ships, thereby speeding shipments and minimizing handling. Full-time security forces are on duty and all buildings where cargoes are stored are fire-proof and also have deluge fire-fighting equipment installed.

Regular scheduled steam ship services to and from both State Ports are provided by, at present, nine outstanding companys. These services place North Carolina in touch with the major shipping centers of the world.

Tonnages at the two "fastest growing ports in the South Atlantic" have continued to increase steadily. What started as a dream 12 years ago and was conceived five years later, has already

Tobacco is loaded for export at the state-owned ocean terminal at Morehead City. The modern terminal has a 2,550-foot wharf, transit sheds, warehouses, grain storage, and full railroad and truck services.



At Wilmington the State Docks have been designed for handling of "general cargo," such as dry bulk products including scrap steel, wood products, and so on. The docks feature heavy lift gantry cranes, marshalling yard, switching engines and all other equipment needed for such operations.

exceeded the highest hopes held by its founders. In less than five years the State Ports Authority facilities outgrew themselves, necessitating the current expansion program. Port Authority officials insist that the current growth is only the beginning, and the South and North Carolina moves toward a balanced economy with greater industrialization and increased agricultural shipments out of the area.

Today, Ocean Terminals at Morehead City and State Docks at Wilmington are playing one of the most important economic roles in the South as well as in North Carolina itself, and the two ports are fast claiming their prominence in world trade.

Executive offices of the Ports Authority are in Raleigh, where D. Leon Williams is the Executive Director. Members of the Ports Authority are: John M. Reeves, Chairman; William G. Clark, Vice-Chairman; Collier Cobb, Jr., Kirkwood F. Adams, Robert L. Eichelberger, Charles D. Gray, Earl N. Phillips, Thomas M. Evins, Harvey C. Hines.

with $6.238 billion in the previous year.

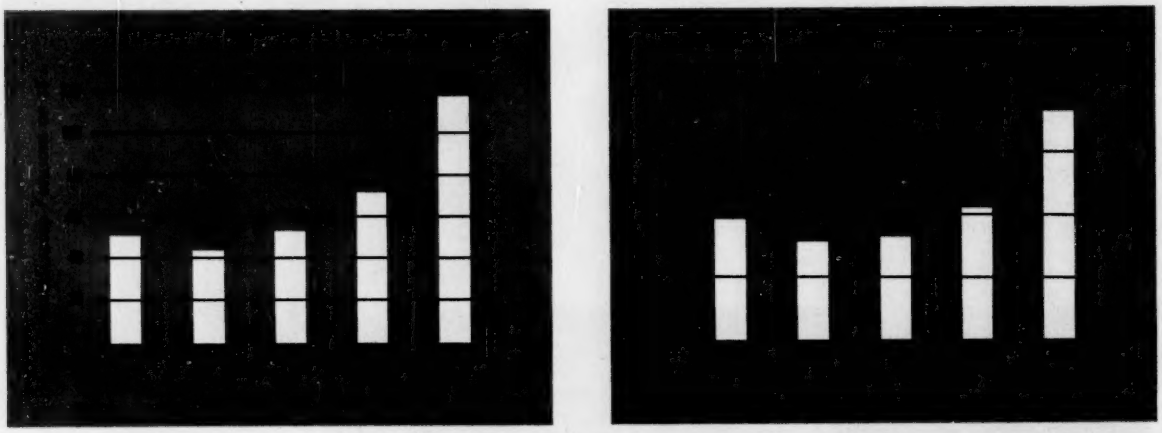
At the same time, per capita income increased from $1,371 statewide in 1958 to $1,621 in 1959. Per capita expenditures increased from $1,179 in 1958 to $1,580 last year.

A Broad Base of Natural Resources

An essential ingredient in North Carolina's development — past, present and future — is its broad base of natural resources.

The state is fortunate, for example, in having an ample supply of water in many areas. As a result of high average rainful in the coastal areas, large supplies of ground water are available there. Surface water supplies also are large and have generally good chemical qualities.

In the Piedmont plateau and mountain regions, moderate amounts of ground water are available, while large industrial and municipal supplies are obtained from the rivers and streams. The state has 16 river basins: Hiwassee, Little Tennessee, French Broad, Watauga, Broad, New, Catawba,



The charts show dramatic evidence of the pattern of industrial growth in North Carolina just during the past five years, new records having been set in both the number of new jobs created and the volume of new payrolls added during 1958 and 1959. Record-breaking growth continued in the first quarter of 1960.

With its strategic location, North Carolina has within a 500-mile radius more than half the population of the United States. This constitutes a prime market which is easily reached via the state's supurb combination of transportation facilities. A plant here thus has excellent access to the entire eastern half of the nation.

In addition, the state itself, as a result of its industrial and commercial growth, is a very important market area.

For instance, the Blue Book of Southern Progress figures show that total income in North Carolina came to $7.461 billion in 1959. That compared

Yadkin, Roanoke, Lumber, Chowan, Pasquotank, Tar, Neuse, White Oak and Cape Fear.

North Carolina has a continuing program to conserve and develop its water resources. Records of flow and chemical analyses of streams and rivers all over the state have been made and are available to the prospective industrialist.

The forests of the state cover more than 20 million acres of land and constitute a well maintained source of raw materials for many types of industries including the growing pulp, paper and packaging mills. There are 136 lookout towers in 88 of the state's counties. The Division of For-

Skilled quarry men are at work here in this major deposit of granite near Mount Airy which has been quarried since 1899. The quarry is operated by the North Carolina Granite Corporation. Altogether, the state has about 200 active establishments in mining which have an annual output value of $33 million.

estry also has three airplanes, its own radio communications network, and a variety of fire-fighting equipment.

Minerals, too, are important in North Carolina and provide the basis for a number of important industries. The state produces, for instance, close to 100 per cent of the supply of primary kaolin in the nation, 70 per cent of ground and scrap mica, 78 per cent of sheet and punch mica, 42 per cent of feldspar, as well as commercial quantities of tungsten, talc, granite, limestone, marl, gravel and sand. North Carolina also has the largest deposits of lithium ore in the Western Hemisphere.

Well distributed over the state are large deposits of clays and shales. From its clays North Carolina produces about 10 per cent of the bricks made in the nation. In 1959, for example, the state produced about 700 million of the 7.5 billion bricks made in the United States.

Altogether, 1960 Blue Book figures show, North Carolina has approximately 200 active establishments in mining. These employ some 3,000 persons and have a total annual output value of $33 million.

Valuable, too, is the take of seafoods from North Carolina's coastal waters. During a recent two-year period, the value of the fish catch to fishermen on the coastal waters was $9,812,857, while the shellfish catch was valued at $5,243,523.

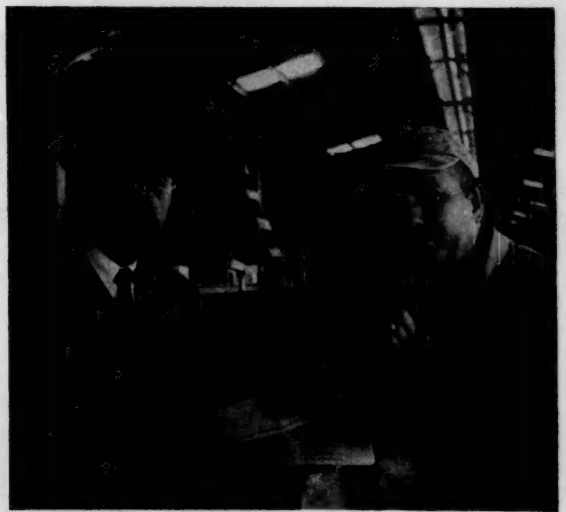
Outstanding among the commercial fish are shad, herring, striped bass, trout, croakers, spot and sea mullets. Menhaden, caught in huge quantities, are important for oils and animals foods. The shellfish take includes oysters, clams, softshell crabs, escallops, hard crabs and shrimp.

Varied Facilities for Fun and Leisure

Since its terrain extends over three distinct geographical regions, North Carolina has an unusual variety of beauty spots which provide virtually every type of outdoor recreation suited to the seasons.

Wherever you may locate an industrial or commercial facility in the state, therefore, you may be assured that you and your employees will be close to a variety vacationland and extensive cultural advantages.

At the community level, practically every town and city of more than 5,000 population has an or-



Unofficial figures show that about 10 per cent of the bricks made in the nation come from North Carolina. Boren Brick Company of Pleasant Garden is one of the major producers. Orton A. Boren (left), president of the company and a member of the State Board of Conservation and Development, confers with Philip D. Pearce, chief engineer, on progress of construction of a new kiln which will be one of the nation's largest.

North Carolina's highly diversified facilities for fun and relaxation include excellent sport fishing, both salt and fresh water, which is unmatched in the eastern United States. These are surf casters along a strand on the Atlantic shores of North Carolina.

ganized recreation program of some type. A great number of them have year-around, full-time programs, while some of the smaller communities have part-time or seasonal programs. Activities of this type are constantly being improved and extended.

A majority of North Carolina's colleges and universities as well as the public schools, offer such spectator sports as football, basketball, baseball and others. Three professional baseball leagues operate wholly or in part in the state.

For outdoor sports, the North Carolina residents have their choice of mountains, beaches, fresh or salt water fishing, golf, big or small game hunting, all in abundance. Covering the western third of the state are the Blue Ridge and Great Smoky Mountains. They have such attractions as the Blue Ridge Parkway and the Great Smoky Mountains National Park, the most visited of all facilities operated by the National Park Service.

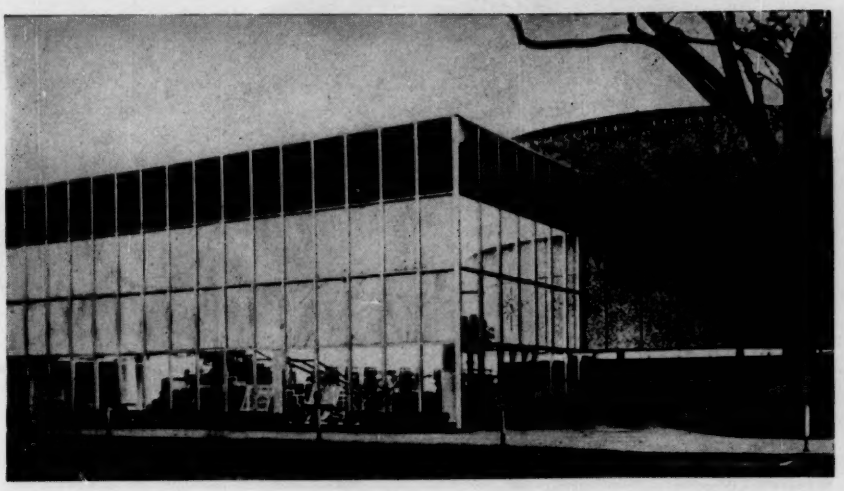
The Sandhills resorts in the central area have mild winter temperatures, while on the coast are fine beaches and the National Seashore Recreation Area, as well as big game fishing.

Altogether, there are 28 state and federal parks, forests and historical sites in North Carolina, and there are more than 70 lakes in the state with recreational facilities.

In addition to being enjoyed by North Carolinians, the state parks constitute great tourist attractions, and an average of more than 1.5 million visitors go to the parks each year.

Combined with the unusual cultural advan-

The mountains of North Carolina, including Great Smoky National Park, offer fine recreational and outdoor living opportunities. Here is Tom Alexander (right), of Cataloochee Ranch near Waynesville, sampling the coffee during a pack trip into the Great Smokies.



Excellent library services are provided in virtually all communities of North Carolina. An example of what is being done here in the field is the recently completed public library at Charlotte which has won acclaim for its design and utility. The building also serves as a community center for conferences, meetings and special events in all types of community activities.

tages of the great universities and colleges, the fine libraries, museums, and churches, and the influence of the state's distinguished history, the natural beauty of North Carolina and the recreational advantages outlined here constitute an area that provides you with a delightful place in which to live and work.

Remarkable Record of Teamwork

It may be said in summary that North Carolina has the elements for continued growth and is proving it rather spectacularly. But, this record could not have been accomplished, nor would the prospects be as good for the future, if it were not for the concerted cooperative effort of the citizenry from the community on through the state level.

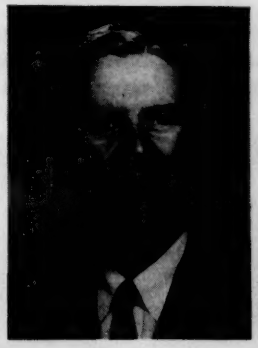
That fact is pinpointed by this comment from Governor Hodges: "We have more than 200 local and regional development associations who, along with our many chambers of commerce, shoulder the responsibility. We tell them quite frankly that the final job of selling is theirs and that before they can sell, they must have the kind of communities and the kind of business climate that will insure a successful industrial operation. We tell them that they must offer not only industrial sites and utilities, but clean streets, adequate housing, libraries, modern educational facilities, recreational facilities, intelligent government and all the other things that go to make a community more than rows of houses with stores and people in them."

It's clear that most of the state's communities have followed that admonition and have enabled efforts at the state level to be doubly successful. The top agency is the Department of Conservation and Development. Its stated mission "is to conserve and develop the natural resources of North Carolina for the common good of all her people."

The policy-making Board of Conservation and Development is headed by the Governor and is comprised of 18 men who are pre-eminent in the industrial, business and professional life of North

AUDITED CITIES IN NORTH CAROLINA

As of this writing, 11 North Carolina communities had certified audits on file in the International Community Audit Registry. The Registry is maintained by INDUSTRIAL DEVELOPMENT magazine as a gratis service to industrialists interested in a summary of pertinent information about specific cities. The North Carolina cities with audits on file are: Asheville, Charlotte, Concord, Elizabethton, Greensboro, Lumberton, Marion, Raleigh, Rocky Mount, Winston-Salem and Wilson. Individual copies of the audits are available on request.



The North Carolina Department of Conservation and Development recently placed a full-time man in New York City to help originate industrial prospects and to encourage them to locate manufacturing plants in the state. The New York representative, who took over his assignment May 1, is Robert U. Woods, a graduate of Davidson College and retired board chairman of the North American Assurance Society of Virginia.

Here is the hard-working staff of the Commerce and Industry Division, State Department of Conservation and Development, at Raleigh. William R. Henderson, Industrial Development Administrator, discusses a new program with Paul Kelly (left), his assistant, and other staff members: Mrs. Renno J. Hawkins, James B. Hauser, Robert W. Whitfield, Thomas B. Broughton, Allison D. Allison, W. H. Riley, M. L. Shepherd, Robert E. Leak, Lewis F. Dunn and Marshall T. Wills. Not in the picture are Cecil E. Bell, Richard P. Mauney, William C. Guthrie, Hunter A. Poole, and J. D. Little, Jr.

Carolina.

Present members of the Board are Miles J. Smith of Salisbury, first vice chairman; W. J. Damtoft of Asheville, second vice chairman; W. B. Austin, Jefferson; D. G. Bell, Morehead City; F. J. Boling, Siler City; Orton A. Boren of Pleasant Garden, chairman of the Committee on Commerce and Industry; H. C. Buchan, Jr., North Wilkesboro; Scroop W. Enloe, Jr., Spruce Pine; Voit Gilmore, Southern Pines; Amos R. Kearns, High Point; H. C. Kennett, Durham; R. W. Martin, Raleigh; Lorimer W. Midgett, Elizabeth City; Hugh M. Morton, Wilmington; Edwin Pate, Laurinburg; W. Eugene Simmons, Tarboro, and T. Max Watson, Spindale.

Director of the Department of Conservation & Development is William P. Saunders. Under his leadership it embraces specialist staffs, not only in developing new industry but also in conservation of natural resources and the coordination of development enterprise with other state and federal departments. The assistant director is J. Edgar Kirk.

The divisions within the Department are Commerce and Industry, State Parks, Forestry, Mineral Resources, Water Resources, Inlets and Coastal Waterways, Commercial Fisheries, Community Development, and State Advertising.

Another important factor, one that is of particular aid both to new industry and to individual communities, is the Business Development Corporation of North Carolina which was established in 1956. This is a private agency designed specifically to assist small business and industries with the financing of their operations. In its first nine months of existence, the corporation made loans totaling $1.8 million. During 1959, it made 30 loans totaling $4.972 million.

Governor Hodges said the Development Corporation had "contributed materially to our recent progress, especially with regard to the development and expansion of small local industries."

Altogether, it is clear that North Carolina has literally a state-wide industrial development team, the strong leadership of the Governor and Mr. Saunders — along with all the other experts in the Department of Conservation and Development — being a dynamic force that has inspired even the smallest communities to put their best foot forward for growth.

You may be assured, then, of a hearty welcome wherever you may go in North Carolina, and you can be certain of getting all possible constructive assistance with your site selection and plant location plans.

You will find, too, that despite North Carolina's burgeoning industrialism, there is still no foreseeable limit to the growth potential, for there are plenty of wide open spaces, an abundance of raw materials, an expanding market, and people ready, willing and able to do an efficient day's job.

I.D. AREA STUDY

The accompanying editorial report on site selection and plant location factors in North Carolina was conducted by the staff of INDUSTRIAL DEVELOPMENT under the auspices of the State Department of Conservation and Development. Reprints of this study are available from the Department at Raleigh, North Carolina.

MANUFACTURERS RECORD

THE INTERNATIONAL SUMMARY OF PLANT LOCATION NEWS ESTABLISHED 1882 VOLUME 129 NO. 7

By DONALD V. QUINN

HANFORD, CALIF. The Armstrong Rubber Company has announced plans for a new $25 million tire producing plant to be built here. The proposed million-square-foot plant will be located on 320 acres and will have a production capacity of 10,000 tires daily.

The site chosen by the company is conveniently located on rail and highway routes and contains excellent sources of water, officials said. Construction will begin shortly with completion of the plant scheduled for late 1961. Besides tires and tubes, Armstrong manufactures foam rubber, synthetic foam and re-tread rubber. The plant will be a one-story structure equipped with all the latest designed tire building, fabric processing and automatic curing equipment to make it the most modern tire plant in the world. Initially, 1,000 people will be employed.

WINSTED, CONNECTICUT. Machlett Laboratories, Incorporated, a division of Raytheon Company will build an expandable 120,000-square foot plant on a 100-acre site it has purchased here, it was announced by Wilbert Stevenson, president of Machlett. Site preparations are underway and it is expected that construction will begin in July and be completed within one year. As many as 500 employees will be at work in the building when full capacity is achieved in late 1963.

A pioneer in X-ray tube development, Machlett also produces storage tubes, power oscillators, high voltage rectifiers, radar modulator tubes, TV camera tubes and display tubes.

The new two-story structure will be completely air-conditioned and especially designed to meet the rigorous environmental requirements necessary for the construction of complex electronic devices.

DALLAS, TEXAS. Plans for construction of a major new paint plant here were announced by Dwight P. Joyce, chairman and president of The Glidden Company. Mr. Joyce said the new plant will cost approximately $2 million and will be built on a 34-acre site. Construction will be started within six months.

The new facility is designed to produce the full line of consumer paints and lacquers and industrial products, including special maintenance finishes for oil field equipment and the chemical industry.

Engineering of the plant provides for future expansion and the company anticipates the production of resins as well as increased output of the initial products. Glidden also plans production of a full line of finishes and other products for pleasure boats.

Designed for an initial production capacity of up to 200,000 gallons a month, the plant will employ approximately 200 persons.

SOUTH SAN FRANCISCO, CALIF. To handle its increasing West Coast business, E. F. Houghton & Company has opened a new plant here. Industrial oils and chemicals formerly manufactured at Houghton's plant in San Francisco, are now being supplied from the new facility. Equipment newly installed includes provision for sulphonation, saponification, compounding, esterification and condensation reactions. Capacity has been increased more than 50 per cent over the former plant.

The new facility is located on a three-acre plot and includes 30,000 square feet of manufacturing space, a new office building, control laboratory and 10,000 square feet of outdoor storage area.

Metalworking items and functional fluids such as cutting and quenching oils, rust preventives, metal cleaners, specialty lubricants, hydraulic fluids and packings are included in the product line, these being supplied from five other plants over the country.

Houghton serves West Coast industry from Southern California where it maintains a warehouse in Los Angeles, and throughout the Bay area, and north to Portland, Seattle and Vancouver. Its staff of technically trained field representatives are under the direction of John Bermingham, Western Sales Manager. The Plant Manager is A. S. Horwitz.

The following is a summary of major industrial plants in the United States, Canada, and foreign countries, reported to INDUSTRIAL DEVELOPMENT during the month of April, 1960, by industries and industrial development organizations.

Number of employees is indicated by the code: A(Under 25); B(25-100); C(100-250); D(250-1,000); and E(over 1,000).

ALABAMA

Bessemer — Matisa Railweld, Inc.; Robert P. Underwood, V. Pres. Rail welding. In Oper. $500,000. 376,000 Sq. Ft. site. (B)

Birmingham — Standard School Service; E. W. Robinson, Pres. Educational products. Est. date of Oper., Summer, 1960. 20,000 Sq. Ft.

Cullman — Bock Industries; Harry M. Cooper, Comp. Frames for mobile homes. Est. date of Oper., August, 1960, 16,000 Sq. Ft.

Fayette — Sterilon Corp.; Robert P. Evans, Pres. Surgical & medical sterile disposable garments. Est. date of Oper., Fall, 1960. 16,000 Sq. Ft. (C)

Shawmut — West Point Mfg. Co.; Paul D. Emery, Asst. Mgr. Fine combed yarn fabrics. Est. date of Oper., Nov., 1960. $2½ million. (D)

ALASKA

No Plants Reported.

ARIZONA

Tucson — Cherrybell Mfg. Corp.; Michael H. Roth & Sol Greenberg, Offls. Lingerie. Under Constr. 5-acre site. 17,000 Sq. Ft. (E)

ARKANSAS

Hot Springs — National Rejectors, Inc.; Coin handling equipment. Est. date of Oper., Late, 1960. 40-acre site. 120,000 Sq. Ft. (D)

Jonesboro — Casby Shoe Co. (Subs. of Frolic Footwear); Women's casual shoes. Plans announced. (C)

Marked Tree — Salant & Salant, Inc.; Men's and boy's shirts. In Oper. 53,000 Sq. Ft. (D)

Rogers — Deming Co.; Pumps and pumping equipment. Plans announced. 16-acre site. 60,000 Sq. Ft. (B)

CALIFORNIA

Fresno — Fullview Corporation; Gerald Woodman, Pres. & Owner. Sliding glass patio doors and sliding windows. In Oper. 10,000 Sq. Ft.

Fresno —William Volker & Co.; Patrick Daley, Mgr. 2272 East Avenue. Linoleum, rugs, and furniture. In Oper. 30,000 Sq. Ft.

Hanford — Armstrong Rubber Co.; Tires, tubes, foam rubber, synthetic foam and retread rubber. Est. date of Oper., late, 1961. $25 million. 1 million Sq. Ft. 320-acre site. (E)

Monrovia — Hitemp, Inc. (Subs. of Hitemp Wires, Inc.); George F. Rolfe, Pres. High temperature insulated wires, cables and cable assemblies. In Oper. $250,000.

San Jose — Par-T-Pak Beverages, Inc.; V. Fabrizzio, Branch Mgr. Soft drinks. Est. date of Oper., July 1960. $700,000. 32,000 Sq. Ft. 30 empls.

Santa Anna — Bendix Aviation Corp.; Cables used on missiles. Under Constr. Est. date of Oper., Early Summer, 1960.

South San Francisco — E. F. Houghton & Co.; A. S. Horwitz, Mgr. 54 Tanforan Ave. Metalworking items and functional fluids such as cutting and quenching oils, rust preventives, metal cleaners, specialty lubricants, hydraulic fluids and packings. In Oper. 30,000 Sq. Ft. 3-acre site.

COLORADO

Denver — Abott Laboratories; 6090 East 39th Ave. Drugs, blood bank equipment and related equipment. In Oper. 28,000 Sq. Ft. (A)

CONNECTICUT

Bristol — Comerford Mfg. Co.; Springs, wire forms. Under Constr. 25,000 Sq. Ft.

Jewett City — Plastic Wire & Cable Corp.; Warehouse. Under Constr. 22,000 Sq. Ft.

North Haven — Linde Co. (Div. of Union Carbide Corp.); W. B. Nicholson, Pres. Flame-plating of metals. Under Constr. Est. date of Oper., Dec. 1960. (B)

Winsted — Machlett Laboratories, Inc.; Wilbert Stevenson, Pres. X-ray tubes, storage tubes, power oscillators, high voltage rectifiers, radar modulator tubes, TV camera tubes and display tubes. Est. date of Oper., 1961. Est. date of Constr., July, 1960. 100-acre site. 120,000 Sq. Ft. (D)

DELAWARE

Dover — Allied Chemical Corp. (Barrett Div.); H. Dorn Stewart, Pres. Gypsum wallboard, lath and sheathing. Under Constr. $Multi-million.

DISTRICT OF COLUMBIA

No Plants Reported.

FLORIDA

Dade City — Dade City Metal Fabricating Corp.; Henry Vandergraff, Pres. 9005 N. 7th Street. Truck bodies, hydraulic hoists, material handling equipment. Est. date of Oper., Fall, 1960. (B)

Dade City — Revell & Pierce Corp.; W. E. Pierce, Ptnr. & Mgr. Interior plywood for kitchen cabinets, furniture & shelving. In Oper. (B)

Dania — Semperad Inc.; C. B. Riles, Pres. Toys, electronic devices. Plans announced. (B)

Dover — Ocean Products, Inc.; Bob Levins, V. Pres. Processing shrimp, oysters and scallops. Est. date of Oper., July, 1960. 20-acre site. (C)

Ft. Lauderdale — MacLeod Instrument Corp.; Frederick MacLeod, Pres. 4250 N.W. 10th Ave. Electronic equipment.

Hollywood — Sherman Classics; Sportswear. Plans announced. 100,000 Sq. Ft. (D)

Lake Butler — Lake Butler Apparel Co.; Norman H. Stephenson, Offl. Perry St. P.O. Box 286. Men's and boy's dress & semi-dress slacks. In Oper. (B)

Lake City — Peerless Mfg. Co.; M. E. Raker, Pres. Highway 90. Plywood and aluminum house trailers. Under Constr. Est. date of Oper., Sept., 1960. 30,000 Sq. Ft. (B)

Miami — Florida Gears & System, Inc.; M. B. Woolf, Offl. 16550 N.W. 10th Ave. Precision gears & components, instruments. Plans announced. (B)

Starke — Florida Sun Wear; S. H. Leslie, Off. West Call St. Men's cotton and synthetic fabric sportswear. In Oper. (B)

Tallahassee — Southern Home Corp.; Lee Everhart, Offl. Jackson Bluff Rd. Pre-fab houses. Est. date of Oper., July, 1960. (B)

Tampa — National Gypsum Co.; Fred A. Manske, Pres. Gypsum wallboard, lath, sheathing and plasters. Est. date of Oper., Late, 1961. $6-8 million. 30-acre site. (C)

GEORGIA

Albany — Freitex Inc.; Infants wear. Est. date of Oper., July, 1960. 18,300 Sq. Ft. (C)

Chamblee — Riegel Paper Corp.; Mr. Barr, Offl. Old Peachtree Rd. Precision printing and converting of paperboard. Plans announced. 16-acre site. 150,000 Sq. Ft. $2 million. (D)

HAWAII

Honolulu — American Concrete Pipe of Hawaii, Inc.; John T. Goss, Mgr., 811 Middle Street. Reinforced concrete pipe. Est. date of Constr., July, 1960. 15-acre site. $750,000.

IDAHO

Burley — Ore-Idaho Frozen Foods; Nephi Griggs, Pres. Frozen foods, potato processing. Under Constr. (D)

THE TOP TEN

On the basis of the number of significant new plants reported in INDUSTRIAL DEVELOPMENT during the six month period ended May, 1960, here are the leading states in industrial expansion and the number of plants reported for each:

1.	TEXAS	74
2.	CALIFORNIA	65
3.	PENNSYLVANIA	62
4.	MASSACHUSETTS	60
5.	FLORIDA	53
6.	MISSISSIPPI	45
7.	NORTH CAROLINA	45
8.	OHIO	34
9.	PUERTO RICO	31
10.	IOWA	30

Nampa — Hehr Manufacturing Co;. Elmer T. Hehr, Pres. Aluminum windows. Est. date of Oper., July, 1960. 5-acre site. 10,000 Sq. Ft. (A)

Rexburg — Rogers Brothers Co.; Potato processing. Est. date of Oper., Oct. 1960. $950,000. (C)

ILLINOIS

Barlett — Flexonics Corp. (Div. of Calumet & Hecla, Inc.); Flexible metal hose products, missile and aircraft components and specialty items. Plans announced. 325,000 Sq. Ft. 50-acre site.

Blue Island — Allied Tube and Conduit Corp.; 13901 S. Western Ave. Electrical metallic tubing. In Oper. 25,000 Sq. Ft.

Chicago — Borg Warner Corp.; Roosevelt Rd. Industrial parts and equipment warehouse. Under Constr. 39,000 Sq. Ft.

Chicago — Hillman's, Inc.; 3900 W. 43rd St. Candy and bakery goods and commissary products. Under Constr. 70,000 Sq. Ft.

Chicago — Jones & McKnights, Inc.; 3200 S. Springfield Ave. Steel bar joists, and reinforcing steel. In Oper. 40,000 Sq. Ft.

Chicago — E. C. Kinney Printing Co.; 3375 W. Columbis Ave. Commercial printing. Under Constr. 11,000 Sq. Ft.

Chicago — Muffler Corp. of America (Subs. of International Parts Corp.); Kildare and 42nd St. Automobile mufflers and tail pipes. Under Constr. 156,000 Sq. Ft.

Chicago — Paraplegics Mfg. Co., Inc.; York Rd. Electronic, mechanical and radio equipment. Under Constr. 20,000 Sq. Ft.

Chicago — Pfaelzer Bros. (Div. of Armour & Co.); 43rd St. & Kildare Ave. Meat processing. Under Constr. Est. date of Oper., Dec. 1960. 75,000 Sq. Ft.

Chicago — Premier Carton Corp.; Corrugated shipping containers. Under Constr. 90,000 Sq. Ft. 7-acre site.

Chicago — Sherwin-Williams Co.; 108th Street & cottage Grove Ave. Research laboratory for paints, lacquers, varnishes, dry colors and paint chemicals. Plans announced. 43,000 Sq. Ft. 8½-acre site.

Chicago — Tel-A-Sign, Inc.; 3401 W. 47th St. Illuminated plastic signs. Plans announced. 104,000 Sq. Ft.

Chicago — United States Steel Corp.; Steel plate mill. Under Constr. Est. date of Oper., 1962. 772,000 Sq. Ft.

Crystal Lake — Ero Mfg. Co.; U.S. Highway 14 & State Hwy 31. Auto seat covers, hassocks and cushions. Under Constr. 122,000 Sq. Ft.

Ladd — Phillips-Hoanna Co.; Polyethylene film. In Oper. 30,000 Sq. Ft. 9-acre site. (B)

La Salle — Illinois Valley Container Corp.; William Meagher, Pres. Corrugated boxes. In Oper. 12,000 Sq. Ft. (A)

Palatine — Elgin National Watch Co.; George W. Fraker, Gen. Mgr. High precision devices for guided missiles, automatic aircraft control systems, and timing instruments for aircraft and missiles. Est. date of Oper., Fall, 1960. 8-acre site.

Peru — Illinois Millwork Corp.; Stock window and door units. Plans announced. 60,000 Sq. Ft. (B)

INDIANA

Bloomington — Franklin Manufacturing Co.; Home freezers. Plans announced. 300,000 Sq. Ft.

IOWA

LeMars — Super Sweet Milling Co. (Div. of International Mills Corp.); Highway 75. Cereal and feed grains processing. Under Constr. $1 million. (B)

KANSAS

No Plants Reported.

KENTUCKY

Calvert City — New York Mining & Mfg. Co.; Chemical coke. Plans announced. $2 million. (B)

Carrollton — Carrollton Cabinet Co., Inc.; Stereo and television cabinets and furniture. In Oper. (B)

Cattlettsburg — Ashland Oil & Refining Co.; Naphthalene. Est. date of Oper., March, 1961. $5 million.

Owensboro — Erskine Precision Wire Co.; Wire for electronics industry. Est. date of Oper., July, 1960. (C)

Richmond — Robinson Machine & Tool Co.; Dies, jigs, fixtures, gages. In Oper. (C)

Russellville — Emerson Electric Mfg. Co.; Fractional motors. Plans announced. $2 million. (D)

LOUISIANA

Lake Charles — Cities Service Co.; Burl S. Watson, Chmn. Petrochemical plant Ortho-xylene. Plans announced. $Multi-million.

New Orleans — Anheuser-Busch, Inc.; Packaged table syrups. Est. date of Oper., July, 1960. $532,168. (B)

Sulphur — Carrier Poultry Co.; Chicken processing plant. In Oper. (B)

MAINE

Scarborough — Herman Shoe Co.; Shoes. Est. date of Oper., Summer, 1960. 20,000 Sq. Ft. (B)

Wiscasset — York Noble Industries, Ltd.; Automobiles. Under Constr. Est. date of Oper., Summer, 1960. 12,000 Sq. Ft. (C)

MARYLAND

Baltimore — Vulcan-Hart Mfg. Co.; Emory L. Brown, Jr., V. Pres. 3600 North Point Rd. Commercial ranges, kitchen equipment and utensils. Under Constr. 36,000 Sq. Ft.

Elkton — General Cable Corp.; Wire and cable. Plans announced. 20-acre site. 100,000 Sq. Ft. (D)

MASSACHUSETTS

Boston — A. S. Aloe Company; Thomas A. Noonan, Offl. Surgical instruments and supplies. Plans announced. $1 million.

Chelmsford — Electro Metals, Inc.; Dale R. Colby, Pres. Electronic components. Est. date of Oper., Aug. 1960. 15,000 Sq. Ft. (B)

Gardner — Nichols & Stone Co.; Edmund L. Nichols, Treas. Wooden chairs, etc. Est. date of Oper., Sept., 1960. 24,000 Sq. Ft. (C)

Gilbertville — Vachon Paper Co.; Paper products. Est. date of Oper., Sept. 1960. 18,000 Sq. Ft. (B)

Newton — Sylvania Electric Products, Inc.; Henry Lehne, V. Pres. Electronic data processing. Plans announced. 200,000 Sq. Ft.

Norwood — Raytheon Company; Richard E. Krafve, Pres. Electronics. In Oper. 109,000 Sq. Ft. (D)

MICHIGAN

Bronson — Kingston Products (Darling Div.); Paul Johnson, Pres. Auto steering columns. In Oper. (D)

Chesaning — Peet Packing Co.; R. D. Stearns, Pres. Meat packers. Plans announced. (D)

Detroit — Anderson, O. L. Co., Inc.; H. J. Koch, Pres. Fuel tanks, metal assemblies, stampings. In Oper. $400,000. (B)

Detroit — Cadillac Steel Products Co.; E. D. Gabor, Pres. Builders hardware, auto parts, lighting fixtures. Under Constr. (B)

Jackson — Clark Equipment Co.; Frank Howard, Plant Mgr. Transmission, gears, torque converters, forgings. Plans announced. $400,000. (E)

Jackson — Goodyear Tire & Rubber Co.; E. T. Ruffner, Plant Mgr. Tires. Plans announced. $450,000. (E)

Jackson — Mechanical Products, Inc.; A. D. Knapp, Pres. Electronics. Plans announced. $250,000. (C)

Rochester — Rochester Paper Co.; Paul Travis, Pres. Paper products. Under Constr. (B)

Royal Oak — Jim Robbins Co.; J .M. Robbins, Pres. Plastic products. Plans announced. (B)

Saginaw — Sunshine Biscuits, Inc.; F. K. Kundinger, Pres. Food products, biscuits, crackers. Plans announced. $500,000. (D)

MINNESOTA

Bloomington — General Electronic Control, Inc.; Gerry H. Bach, Pres. 8001 Access Rd. Electronic devices. Under Constr. Est. date of Oper., Aug. 1960. 7½-acre site. 31,000 Sq. Ft. $500,000. (C)

Faribault — Faribo Mfg. Co.; George Freeborn, Mgr. Water softener tanks, refrigerator parts. In Oper. 10,000 Sq. Ft. 4½-acre site.

Minneapolis — Maico Electronics, Inc.; John J. Kojis, Pres. Hearing aids, and other electronics. Est. date of Constr. 1960. $1.5 million.

Moorhead — Moorhead Plastics, Inc.; Fiberglass boats. In Oper. (B)

St. Paul — Lactona, Inc.; C. Granquist, V. Pres. 236 E. 9th St. Toothbrushes, hair brushes, and toilet brushes. Under Constr. Est. date of Oper., July, 1960. 10,000 Sq. Ft.

Stillwater — United Fabricator & Electronics Corp.; Custom injection molding, mechanical & electrical assemblies. In Oper. 2½-acre site. (B)

MISSISSIPPI

Durant — Hungerford Plastics; Industrial molded plastics, plastic toys. Plans announced. (B)

Kosciusko — Lawrin Co.; Lamps. Plans announced. (D)

Pelahatchie — Coopers Mfg. Co.; Furniture. Plans announced. (B)

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Woodville — King Lumber Co.; Lumber. Plans announced. (C)

MISSOURI

Cape Girardeau — Marquett Cement Mfg. Co.; Limestone crushing plant. Plans announced. $329,920.

Centralia — A. B. Chance Co.; Power & Communications line equipment. Research center. In Oper. 28,000 Sq. Ft. 18-acre site.

Grandview — Butler Mfg. Co.; Plastic building panels. Est. date of Completion, June, 1960. 31,800 Sq. Ft.

Hannibal — Lindell Products, Inc.; Metal stamping products. In Oper. 20,000 Sq. Ft. (B)

Jefferson City — Riteway Poultry Co.; Poultry processing. In Oper. 20,000 Sq. Ft. $350,000. (B)

Joplin — Solar Nitrogen Chems. Inc.; Anhydrous ammonia urea & related products. Plans announced. $15 million.

Kansas City — Reichold Chemicals; Formaldehyde. Est. date of Oper., Early 1960. $500,000.

Kansas City — Sealtest (Central Div.); Milk processing. Plans announced. 25-acre site. 55,000 Sq. Ft.

Kansas City — Sitton Septic Tank Co.; Precast concrete septic tanks & concrete sewer manholes. In Oper. 25,000 Sq. Ft.

Neosha — Caudell Mobile Homes; Mobile homes. In Oper. 15,000 Sq. Ft. (B)

Sikeston — Harts Bakery; Bakery products. Plans announced. $500,000.

MONTANA

No Plants Reported.

NEBRASKA

No Plants Reported.

NEVADA

No Plants Reported.

NEW HAMPSHIRE

No Plants Reported.

NEW JERSEY

Clarksville — Lockheed Electronics Co.; David F. Sanders, Pres. (Subs. of Lockheed Aircraft Corp.) U.S. Route 1. Electronics. Plans announced. 212-acre site.

NEW MEXICO

No Plants Reported.

NEW YORK

Huntington — Lambda Electronics Corp.; Power supplies. Under Constr. 14-acre site. 76,000 Sq. Ft.

Syosset — Fairchild Camera and Instrument Corp.; Environmental test laboratory. Under Constr. $1.5 million.

NORTH CAROLINA

Asheville — Concrete Products Company; D. B. Moore, Pres., & Gen. Mgr. U.S. 19-23. Decorative block, split stone, cement furniture and drain tile. Under Constr. $250,000. 20,000 Sq. Ft. (B)

Asheville — Haywood Industries; Thomas E. Forrest and H. Leonard Seidman. Co-owners. Foam rubber products. In Oper. 50,000 Sq. Ft.

Pinebluff — Watson-Williams Mfg. Co.; Hubert J. Watson, Treas. & Sales Mgr. U.S. Highway 1. Textile shuttle. Est. date of Oper., Aug. 1960. 36,540 Sq. Ft. (B)

Waynesville — Small Fruits and Vegetable Assoc.; U.S. 19A-23. Packaging tomatoes. Under Constr. Est. date of Oper., July, 1960. 10,000 Sq. Ft. 4-acre site. (B)

Wilmington — Ideal Cement Co.; U.S. Highway 421. Cement. Plans announced. $Multi-million.

NORTH DAKOTA

No Plants Reported.

OHIO

Akron — Burger Iron Co.; 1324 Firestone Pkwy. Steel & steel mold plates. In Oper. (C)

Alliance — Porce-Alum Co.; 1701 Lake Park Blvd. Architectural porcelain on aluminum. In Oper. 45,000 Sq. Ft.

Bellville — Gorman-Rupp Inc.; Hines Ave. Small centrifugal pumps. In Oper. 16,000 Sq. Ft. (B)

Canfield — Mahoning Culvert Co.; Akron-Canfield Rd. Steel corrugated drainage pipe. In Oper. 5½-acre site. (B)

Cincinnati — Tri-State Dist. Co.; 8th and Broadway. Automotive parts. In Oper. 15,000 Sq. Ft. (B)

Cleveland — Anderson Concrete Corp.; 560 E. 34th St. Concrete. In Oper. 2-acre site. (C)

Cleveland — Spector Freight System; 3600 Lakeside Ave. Motor freight terminal. In Oper. 70,000 Sq. Ft.

Cleveland — Woodhill Chemical Co.; 1390 E. 34th St. Chemical specialties. In Oper. (B)

Columbus — Corrugated Container Co.; 640 Shoemaker St. Corrugated boxes. In Oper. $250,000. (D)

Columbus — Hanover Neon Electric Corp.; Fred N. Hanover, Pres. Joyce Ave. Illuminated plastic and neon signs. Under Constr. Est. date of Oper., Sept. 1960. $500,000. 75,000 Sq. Ft.

Dayton — Commercial Metal Fab.; 1945 Kuntz Rd. Steel fabrications. In Oper. 18,000 Sq. Ft. $160,000. (A)

Dayton — Fogarty Mfg. Co.; 1090 E. Monument Ave. Signs, racks for display advertisers. In Oper. 25,000 Sq. Ft. (B)

Delaware — Araboll Mfg. Co.; Park Ave. Adhesive for packaging. Plans announced. 20,000 Sq. Ft. 5-acre site.

Euclid — Glascote Prod. Inc.; 20900 St. Clair Ave. Heavy duty gasline reactors, column. In Oper. 30,000 Sq. Ft. $450,000. (C)

Evandale — Aristo-Craft Inc.; 10549 Reading Rd. Aluminum windows, doors, and awnings. In Oper. 22,000 Sq. Ft. IBO

Findley — Dow Chemical Co.; Film. Plans announced. 208,000 Sq. Ft. 42-acre site.

Lancaster — Lancaster Electro Plating Co.; W. Mulberry St. & Sylvan Ave. Metal finishing. In Oper. 12,000 Sq. Ft. (C)

Lowellville — Falcon Foundry; 6th & Water Sts. Bronze, brass & copper castings. In Oper. 19,600 Sq. Ft. (B)

Milan — Clevite Harris Prod. Inc.; Lockwood Rd. Fab. rubber parts. In Oper. 30,000 Sq. Ft. $200,000. (C)

Sidney — Shelby Mfg. Co.; 324 Adams St. Grain processing equipment. In Oper. 10,000 Sq. Ft. (B)

Solon — Warner & Swasey Co.; 28999 Aurora Rd. Machine tools & textile machinery. In Oper. 40,000 Sq. Ft. $1½ million. (B)

Springfield — Bauer Bros. Co.; Paper pulp machinery & wire products. In Oper. 30,000 Sq. Ft. $300,000. (D)

OKLAHOMA

Durant — Hercules Galion Products Corp.; E. P. Monroe, Pres. Dumptruck bodies, hydraulic lifts. In Oper. (B)

Stillwater — Tyson Poultry Products. Poultry processing. In Oper. (B)

OREGON

Portland — National Can Corp.; Dale Jordan, Chief Exec. & Plant Mgr. Lithographed cans for beer, soft drinks, juice, and sanitary cans. In Oper. (B)

PENNSYLVANIA

Allentown — South Mfg. Co.; Foundation garments. Plans announced. $14 million. (D)

Altoona — Boyer Bros., Inc.; Confectionery products. Plans announced. 24,000 Sq. Ft. (C)

Bedford — Bedford Shoe Co.; Shoes. Plans announced. 71,000 Sq. Ft. $390,000. (D)

Bloomsburg — Milco Undergarments Co., Inc.; Ladies undergarments. Plans announced. (B)

Bridgeville — Universal-Cyclops Steel Corp.; Stainless, tool, high temperature and special steels. Plans announced. $7 million. (E)

Dixonville — Greensteel-Kork, Inc.; Chalkboard. Plans announced. (B)

Emlenton — Emlenton Limestone Co., Inc.; Limestone aggregate. Plans announced. $500,000. (A)

Fort Washington — Beemer Engineering Co.; Albert J. Diesinger, Jr., Pres. Bearings and other precision products. Est. date of Oper., July, 1960. $200,000. 10,500 Sq. Ft. 3-acre site.

Gladwine — Mili-Switch Corp.; Sensitive snap action switches. Plans announced. (B)

Honesdale — Banner Slipper Co., Inc.; Women's shoes. Plans announced. (C)

King of Prussia — Philadelphia Gear Corp.; Gears, Power transmission equipment. Plans announced. (C)

Kutztown — Linville Shoe Mfg. Co., Inc.; Shoes. Plans announced. (B)

Lehighton — Duraloom Carpet, Inc.; Broadloom carpets. Plans announced. 22,000 Sq. Ft. (B)

Lewisburg — Lewisburg Chair & Furniture Co.; Furniture. Plans announced. (B)

Mount Carmel — Joston Aluminum Products Co.; Aluminum doors and storm windows. Plans announced. 19-acre site. $450,000. (C)

Oakdale — United States Concrete Pipe Co.; Concrete pipes. Plans announced. $500,000. (B)

Philadelphia — Dalco, Inc.; Sport coats and jackets. Plans announced. (C)

Philadelphia — James H. Mathews Co.; Printing dies. Plans announced. (B)

Sciota — La Mar Fashions; Women's blouses. Plans announced. (B)

Titusville — Universal-Cyclops Steel Corp.; Stainless, tool, high temperature and special steels. Plans announced. $2.6 million. (E)

York — Pennsylvania Cemetery Service, Inc.; Concrete burial vaults. Plans announced. (B)

PUERTO RICO

Carolina — Marcat, Inc. (Thomas Electronics, Passaic, N. J.); Television tubes. Plans announced. (B)

Comerio — Melodia Shoe Corp (Melody Shoe Corp., Barre, Penna.); Hand-made ladies shoes. Plans announced. (C)

Fajardo — Precision Mills, Inc. (Sea Isle Mfg. Co., Inc., N. Y. 16, N. Y.); Lingerie. Plans announced. (B)

Manati — Iris Embroidery-Furtune Lingerie (International Embroidery, N. Y., N. Y.); Panel embroidery for lingerie. Plans announced. (C)

Mayaguez — Rayco Mfg. Co. (Margit Mfg. Co., Paramus, N. Y.); Automobiles. Plans announced. (B)

Mirama-Santurce — Character Foundation (Makress, Inc., N. Y., N. Y.); Girdles. Plans announced. (B)

Ponce — Seapearl Corp. (Royal Bead Novelty Co., N. Y., N. Y.); Costume jewelry. Plans announced. (C)

Ponce — Western Fher; C .H. Bohevinger & Sohn, Ingelheim Am Rhein, W. Germany) Pharmaceutical products. Plans announced. (B)

Rio Piedras — Arshall Laboratories (Lawrence Rapport, Chicago, Ill.); Intramuscular iron comples. Plans announced. (B)

Rio Piedras — Jaress Corp. (T.O.D. Mfg. Co., Hicksville, N. Y.); Aircraft. Plans announced. (B)

San Juan — Caribbean Paper Stock Corp. (Joseph G. Donahoo, Cincinnati, Ohio); Waste paper. Plans announced. (B)

RHODE ISLAND

North Smithfield — Amperex Electronic Corp.; Frank Randall, Pres. (Subs. of North American Philips Co. Inc.) Semiconductors. Est. date of Oper., Sept. 1960. 23-acre site. 40,000 Sq. Ft. $400,000. (D)

(Continued on page 56)

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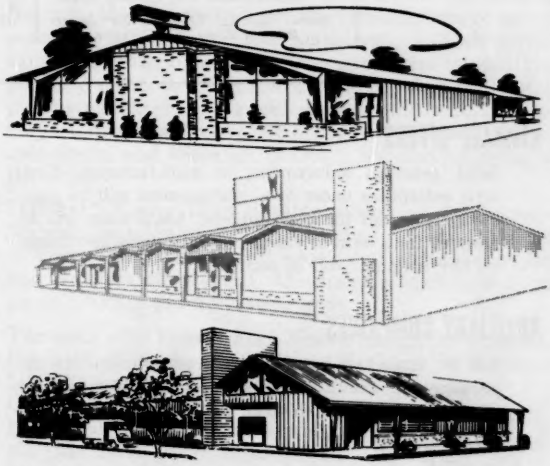
Uniframe means that nuts and bolts have been eliminated from the steel framework through a unique system of welded construction. It creates a solid building . . . a building of strength and beauty . . . and does it at low cost.

A complete line of buildings is available in clear span widths up to 120 feet. Fill out the coupon and find out more about Varco Uniframe Buildings—the better building . . . for less.



VARCO, Dept. ID-1
P. O. Box 781, Pine Bluff, Arkansas

Send me more information about Uniframe buildings. I'm interested in a building approximately_____size to be used for_____.

NAME FIRM

ADDRESS

CITY STATE

DIRECTED BY
Richard Edmonds ..1882-1930
Frank Gould 1930-1943
William Beury 1943-1955
McKinley Conway..1956

MANUFACTURERS RECORD
(IN REVIEW)

"What Enriches Any Region Enriches The Nation"

JUNE 1886 (AS ABSTRACTED MORE THAN 70 YEARS LATER) BALTIMORE, MD.

KIMBALL

MARION COUNTY, *TENNESSEE*

KIMBALL TOWN COMPANY

H. I. KIMBALL
Vice President & Managing Director

DIRECTORS

HON. LOGAN H. ROOTS, *President of First National Bank,* Little Rock.

CHARLES P. RICHARDSON, *Capitalist,* Chattanooga.

J. R. STEVENS, *President First National Bank,* Huntsville, Alabama.

A. J. MORRISON, *Capitalist,* London, England.

J. H. BRYANT, *President Seattle Coal & Iron Co.,* New York.

GEO. COOK, *President Hallet & Davis Piano Co.,* Boston, Mass.

HON. H. L. COCHRAN, *Judge Probate Court,* Fort Wayne, Ala.

OFFICERS

H. I. KIMBALL, Atlanta, Ga. *President,* HON. LOGAN H. ROOTS.

Vice-President, C. P. RICHARDSON.

Second Vice-President and Managing Director, H. I. KIMBALL.

Treasurer, J. H. BRYANT.

Assistant Treasurer, ED. E. RICHARDSON.

Secretary, W. E. DONALDSON.

Assistant Secretary, W. BROOKS COVELL.

ATTORNEYS

W. E. DONALDSON, Kimball.
SHEPHERD, WATKINS & BATES, Chattanooga.

ENGINEERS

Landscape Engineer, NATHAN G. BARRET.

Resident Engineer, W. J. KELLY.

Sewerage and Electrical Engineers, NIER, HARTFORD & MITCHELL.

Hon. SAM'L H. BUCK, *Gen. Superintendent.*

OFFICES

Richardson Building, Chattanooga.

Union Trust Building, So. Broadway, New York.

Company's Building, Kimball, Tenn.

KIMBALL OFFERS

Solid, practical inducements to manufacturers. First-class enterprises under good management will be guaranteed, one-half the cash required. Local taxes will be remitted for a term of years. Lowest freights and cheapest raw materials will be secured.

AUXILIARY COMPANIES

will be organized by the parent corporation for developing the wealth of the Sequachee Valley and for supplying the city with heat, light, water, power and transportation.

A MAMMOTH INDUSTRIAL BUILDING

will be erected by the Kimball Town Company, which will have power, light and heat, that will be supplied to manufacturers on the most liberal terms.

Ample provisions made for religious and educational institutions.

NO FURTHER AUCTION SALES

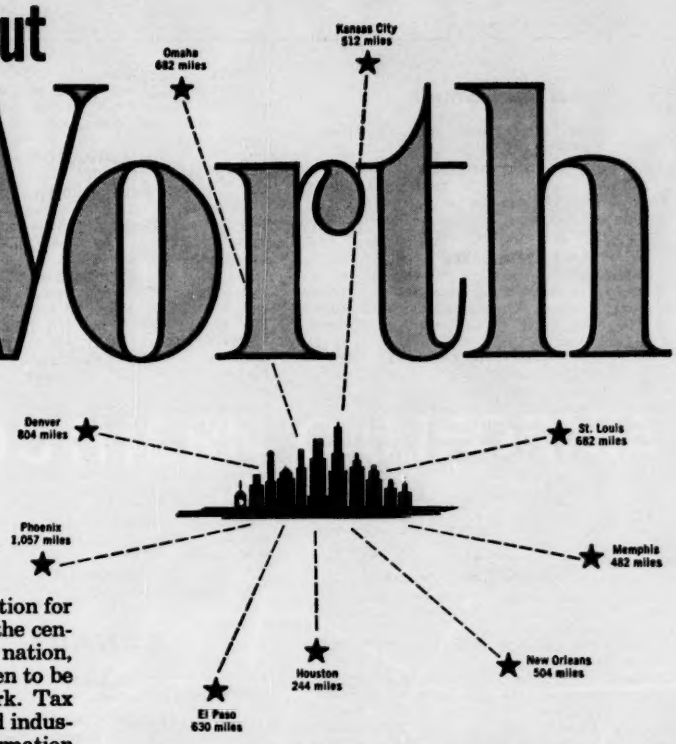
this year and no private sales of the corporation's lots except to those who will contract to build immediately on plans approved by the management.

ALL CORRESPONDENCE SHOULD BE ADDRESSED TO

H. I. KIMBALL, Managing Director **CHATTANOOGA, TENN.**

Who says industrial development is something new? This advertisement, which appeared in MANUFACTURERS RECORD well before the turn of the century, could easily be applied to a typical community development program being carried out today.

information about Ft. Worth for industrial site seekers



Fort Worth is a highly desirable and logical location for companies wishing to serve the Southwest. In the center of one of the fastest growing regions in the nation, Fort Worth has an abundant labor supply proven to be easily trained for semi-skilled and skilled work. Tax laws and the local government's attitude toward industry are both favorable. If the following information about Ft. Worth interests you, get in touch with us for more specific details. We'll work with you in strictest confidence.

LABOR: Labor force of 212,500. Sound balance between supply and demand for workers provides an excellent pool of unemployed and reserve workers who could be recruited almost at once. Diversification of industry in Fort Worth has resulted in a large supply of highly skilled, versatile personnel.

POWER: *Electric*—1,140,780 KW daily generating capacity of Texas Electric Service Company. Three steam electric generating stations serve the area.

Gas—A gross underground storage capacity of 50,000,000 Mcf. Current estimated reserve of three trillion cubic feet—a 20-year supply. Gas is supplied from 13,000 wells in 300 gas fields in Texas and Oklahoma.

Fuel Oil—Unlimited commercial supply.

TRANSPORTATION: The Rock Island and eight other railroads; 34 common motor carriers; six airlines.

RAW MATERIALS: Ample forest resources, rapid growth cycle of commercial timber, vigorous conservation program. Texas is the nation's leading producer of cotton, cattle, wool, mohair, and grain sorghums. Limestone, clays, coal, sand, and gravel are in abundance in Tarrant County.

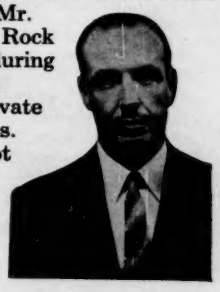
HOUSING: 111,000 new dwelling units since 1940. An average of 1,297 houses for sale and 559 units for rent per week. Average selling price of desirable homes is $12,198, with per-square-foot costs ranging from $10 to $15.

THE COMMUNITY: 80 elementary schools, 26 junior and senior high schools, 2 technical schools. Two colleges, a university, and a theological seminary. Extensive adult education programs. 72 parks, 8 general and 2 children's hospitals; 1 doctor per 750 persons. Texas has no state or local sales tax, and no individual or corporate income tax. The level of combined state and local taxes is about 10% below the average for all states.

COMMERCIAL SERVICES: About 1,000 manufacturing industries operate in Fort Worth, of which 90% employ fewer than 50 workers each. These smaller industries provide both diversity and stability to the economy of the city. Major activities are the manufacture of transportation equipment, food, machinery, and air conditioning. Among other industries are metal fabrication, printing, chemicals, fertilizers, plastics, electronics, and packaging materials. Agriculture and petroleum are also major industries. Over 1,000 firms are engaged in wholesale trade, and there are about 2,300 service firms in the city.

CLIMATE: Yearly normal temperature of 66 degrees; normal annual rainfall of 33.69 inches. The region is one of temperate climate, and occasional extremes of hot and cold are short-lived. Measurable snowfalls occur on an average of only once a year.

The man who knows Fort Worth industrial sites like the back of his hand is Wayne C. Gault of the Rock Island's Industrial Department. Mr. Gault and his staff are typical of Rock Island specialized personnel who, during the past three years, have helped locate over a billion dollars of private industry along Rock Island tracks. He can help you find just the spot you need. For full details, write, wire, or phone W. C. Gault, 720 Young Street, Dallas, or Industrial Department 147, Rock Island Lines, Chicago 5.



Rock Island

ROCK ISLAND LINES

The railroad of planned progress
. . . geared to the nation's future

(Continued from page 52)

SOUTH CAROLINA

Sumter — Eastern Brick and Tile Co.; W. C. Cress, Mgr. Brick and tile. Under Constr. 67,000 Sq. Ft. $1 million.

SOUTH DAKOTA

Mitchell — M. and R. Dietetic Laboratories, Inc.; Melvin D. Ross, Pres. Milk products for babies. Est. date of Constr., Spring 1960. $1.75 million. (B)

TENNESSEE

Hohenwald — Boston Woven Hose & Rubber Co. (Subs. of American Biltrite Rubber Corp.); Horizontal braided hose. Est. date of Oper., 1961. $3 million. 37-acre site. 166,000 Sq. Ft. (D)

Linden — Linden Apparel Co.; Highway 13. Men's sport coats and jackets. Under Constr. Est. date of Oper., July, 1960. 300,000 Sq. Ft. (C)

Nashville — Superglas Corp.; O. H. Ingram and Hal L. Hohnson, Offls. Centennial Blvd. Fiberglass boats. Under Constr. 26,000 Sq. Ft.

TEXAS

Arlington — R. T. & E. Corp.; Donald M. Parrish, Mgr. Electrical distribution transformers. Est. date of Oper., Late, June, 1960. 25,000 Sq. Ft. 3-acre site. (B)

Arlington — Tex-N-Set Manifold Co.; Dudley Hodgkins, Jr., Pres. 1100 Harrison. Rotary and manifold business forms. In Oper. 15,000 Sq. Ft.

Conroe — Sparkle Mfg. Co.; Industrial filters. In Oper. (C)

Dallas — Glidden Co.; Dwight P. Joyce, Chm. & Pres. Paints and lacquers and industrial products, including special maintenance finishes for oil field equipment and the chemical industry. Est. date of Oper., Late, 1960. 34-acre site. $2 million. (C)

Dallas — New Moon Homes, Inc.; James Redman, Pres. Mobile homes. Under Constr. Est. date of Oper., June, 1960. 1.7-acre site. 16,000 Sq. Ft. (B)

Denton — Amphibious Boats, Inc.; Fibreglass conventional and amphibious boats. In Oper. 40,000 Sq. Ft. (B)

El Paso — Due-Bed Corp.; Elliott Frey, Pres. Hotel furniture. Plans announced. 100,000 Sq. Ft. $500,000. (C)

Fort Stockton — North Central Oil Corp.; Natural gas processing. Plans announced. $250,000.

Fort Worth — Francis Equipment Co.; William R. Francis, Owner. Trailers, truck bodies and brakes. In Oper. 10,000 Sq. Ft.

Fort Worth — Lanes' Mfg. Co.; J. D. Lane, Owner. Roadside school houses. In Oper. (B)

Georgetown — Giddings Mfg. Co.; Wallace Giddings, Pres. Upholstered and wrought iron furniture. In Oper. 40,000 Sq. Ft. (B)

Hearne — Vitro-Tech Corp.; Bathroom fixtures. In Oper. (B)

Houston — Cargill Co.; Phio Alexander, Pres. 2910 McKinney. Commercial printing and office supplies. In Oper. 22,000 Sq. Ft.

Sugar Land — Imperial Sugar Co.; W. H. Louviere, Pres. Sugar. Under Constr. Est. date of Oper., Oct. 1960. $500,000.

Woodville — M&P Construction Co.; Pre-Fabricated buildings. In Oper. (B)

UTAH

No Plants Reported.

VERMONT

Brattlesboro — Case Brothers, Inc.; Specialty paperboard. Est. date of Constr., June, 1960. Est. date of Oper., Jan. 1961. $2.5 million. 70,000 Sq. Ft. (B)

VIRGINIA

Newport News — Hampton Hardwood Corp.; 56th & City Line Rd. Interior moldings, trim, door jambs, furniture parts and other hardwood products and components. Est. date of Oper., August, 1960. $250,000. (B)

Saltville — Olin Mathieson Chemical Corporation; Thomas S. Nichols, Ch. of the Bd. Anhydrous hydrazine, a rocket and missile fuel. Plans announced. $Multi-million.

WASHINGTON

No Plants Reported.

WEST VIRGINIA

Manheim — Sterling Interprises; J. W. Ruby, Pres. Poultry, feed processing and metal fabrication. In Oper. $350,000. 1,200-acre site. (C)

WISCONSIN

Ashland — Bob Larson Enterprises; Robert Larson, Pres. Hydraulic machines. Est. date of Oper., 1960. (B)

Marshfield — Wisconsin Turkey Industries, Inc.; Larry Lkemme, Pres. Dressed turkeys. Est. date of Oper., Fall, 1960. $600,000. (C)

Milwaukee — Milwaukee Journal; Harry J. Grant, Chrmn. Printing. Est. date of Oper., Late, 1961. 221,000 Sq. Ft. $5.755 million.

Pewaukee — Precision Gears, Inc.; Walter P. Steiner, Pres. Gears. In Oper. 16,000 Sq. Ft. (B)

Port Washington — River Stayes Oil Co.; Oil terminal. Est. date of oper., 1960. $500,000.

WYOMING

No Plants Reported.

CANADA

ALBERTA

No Plants Reported.

BRITISH COLUMBIA

Crofton — B. C. Forest Products Ltd.; Pulp. Under Constr. Est. date of Oper., Fall, 1960. $850,000.

Kitimat — Aluminum Co. of Canada Ltd.; Aluminum ingot. Under Constr. $1.63 million.

North Vancouver — Canadian Park & Tilford, Ltd.; Whisky, gin, vodka — distillery. In Oper. $6 million.

Ocean Falls — Crown Zellerbach Canada, Ltd.; Newsprint. Plans announced. $750,000.

Port Coquitlam — Evans-Coleman & Evans Ltd.; Aggregates. Under Constr. $1.5 million.

MANITOBA

St. James — Kimberly Clark Canada Ltd.; 575 Beryy St. Cleansing tissue, sanitary napkins. Est. date of Oper., Sept. 1960. 1½-acre site. $250,000. 25,240 Sq. Ft. (B)

I. D. CALENDAR — 1960

June 9-10

California Industrial Development Conference, Los Angeles Biltmore Hotel, Los Angeles, California. Arrangements being made by the Industrial Department of the Los Angeles Chamber of Commerce, 404 South Bixel Street, Los Angeles 54, California.

August 7-13

Department of Industrial and Management Engineering, 11th Annual Industrial Research Conference, Arden House, Harriman Campus, Columbia University, Harriman, New York. Arrangements being made by M. F. Garvey, Secretary, Industrial Research Conference, 409 Engineering Building, Columbia University, New York 27, New York.

NEW BRUNSWICK
NEWFOUNDLAND
NOVA SCOTIA

No Plants Reported.

ONTARIO

Clarkson — Sangstercraft Eastern Ltd.; 2380 High #122. Fibre glass pleasure craft and accessories. In Oper. 30,000 Sq. Ft. 4-acre site.

Highbury — Hart Battery Co. Ltd.; Vulcan Street. Storage batteries. Under Constr. 22,000 Sq. Ft.

Long Branch — Gabriel of Canada Ltd.; J. B. Van Der Hout, Pres. 1480 Lake Shore Rd. Shock absorbers and related automotive products. Under Constr. Est. date of Oper., Nov. 1960. 40,000 Sq. Ft. (C)

North York — Magcoa Ltd.; Penn Drive. Materials handling equipment and special handling devices fabricated of magnesium and aluminum. In Oper. 2-acre site. 10,000 Sq. Ft.

Toronto — Collett-Sproule Boxes Ltd.; F. L. Damon, Pres. & Gen. Mgr. Kennedy Rd. and Highway 401. Folding and set-up boxes. Under Constr. 24-acre site. 150,000 Sq. Ft. (D)

Toronto — Cole Steel International Ltd.; 1865 Birchmount Rd. Steel office furniture, and equipment. In Oper. 75,000 Sq. Ft. 10-acre site.

Toronto — Federal Pacific Electric of Canada; 41 Hollinger Rd. Electrical distribution equipment, circuit breakers, switchboards, etc. In Oper. 10,000 Sq. Ft.

Toronto — John Inglis Co. Ltd.; Eglinton and Pharmacy Ave. Transformers, motors, switchgear and other electrical apparatus. Under Constr. $2 million. 40-acre site. 140,000 Sq. Ft.

PRINCE EDWARD ISLAND
QUEBEC

No Plants Reported.

SASKATCHEWAN

Weyburn — Western Wire & Cable Co. Ltd.; T. E. Termuende, Pres. Telephone cable, and plastic pipe. In Oper. $500,000. (A)

FOREIGN

Belgium — Malines. Du Pont de Nemours (Belgium) S.A.; Lammot du Pont Copeland, V. Pres. Automotive, household, and industrial paints. Plans announced. (C)

Burma — Rangoon. Fertilizers and Chemicals, Ltd.; (Haifa, Israel), will build during the next two years a $2-million superphosphates and sulfuric acid plant near Rangoon. Part of the equipment will be made in Israel. Government approval reportedly has been obtained.

England — London. Witco Chemical Co., Ltd. (London), wholly owned subsidiary of Witco Chemical (New York), will build an 8-million-lbs./year synthetic rubber latex facility on a 20-acre site in the English Midlands. The plant, scheduled for completion in early 61, will produce butadiene-styrene, high styrene, nitrile and other acrylic types of latexes.

Singapore — Maruzen Oil of Tokyo, Japan has completed negotiations with the Singapore government for a refinery to be built by Maruzen and Toyo Menka Kaisha, Japanese machine tool manufacturers. The refinery will have a capacity of 20,000 barrels per day. Completeion is scheduled for November 1961. The government will lease land for the $7 million plant and grant a five-year tax exemption.

West Indies — Jamaica — Jamaica Associates, Ltd.; Fred C. Herwig, Exec. Director. Children's wear. Est. date of Oper., early, spring, 1960. (D)

West Indies — Jamaica — Jamaica Pottery Ltd.; Joseph F. Gimson, Chmn. Chinaware and tiles. Est. date of Oper., early, 1961. $1.5 million. (D)

OF SOUTHERN CALIFORNIA

GOOD LIVING IN A RICH

California's South Bay Area, comprised of a cluster of rapidly growing communities, offers you such things as a year around summer-clothes climate, easy access to beach and mountain recreational facilities, an unexcelled pool of workers, and choice plant and home sites, all in the middle of the nation's fastest expanding market.

By Jouett Davenport, Jr.

TORRANCE. To be believed, the sprawling metropolitan area of Los Angeles County literally has to be seen, for with the explosive rate of growth occurring here a visitor gets the impression that much of what he sees was built yesterday or perhaps this morning.

Epitomizing this headlong pace of development is the group of communities located in what is called the Greater South Bay Area, south of the City of Los Angeles.

The largest city in the South Bay group is Torrance, and we were amazed to learn during our visit here that this community's population has soared from 22,241 in 1950 to an estimated 102,290 as of April 1, 1960.

Expansion taking place at this speed makes statistics virtually out of date between the time they are gathered and can be put into print. And what is true of Torrance is true, in varying degrees, of other communities in the South Bay area. These other communities include Gardena, Palos Verdes, El Segundo, Hermosa Beach, Manhattan Beach, Redondo Beach and Lawndale, each of which will be discussed in detail later in this report.

The growth of industry in the area has paralleled and is an integral part of the general economic expansion that has taken and is taking place here. It is a fact, too, that just as people have flocked to the area, so have new plants been continuously attracted by the many advantages offered here, and the company names you see read like a list of "Who's Who" in industrial America.

Existing Plants Expanding Rapidly

Typical of mushrooming South Bay plants is that of Pacific Semiconductors, Inc., a subsidiary corporation of the big Thompson Ramo Wooldridge, Inc.

On our visit to the semiconductor facility, Administrative Department Manager Joe Ross told us that the plant, completed about a year ago, was in the process of being more than doubled in size. When the expansion is completed the facility will have approximately 245,000 square feet of floor space. Current employment totals 1,700.

Further, the company recently announced plans to build, in the City of Torrance, a corporate head-

The fine art of surfboard riding is one of the many water sports enjoyed in the several beach areas of the South Bay.

MARKET

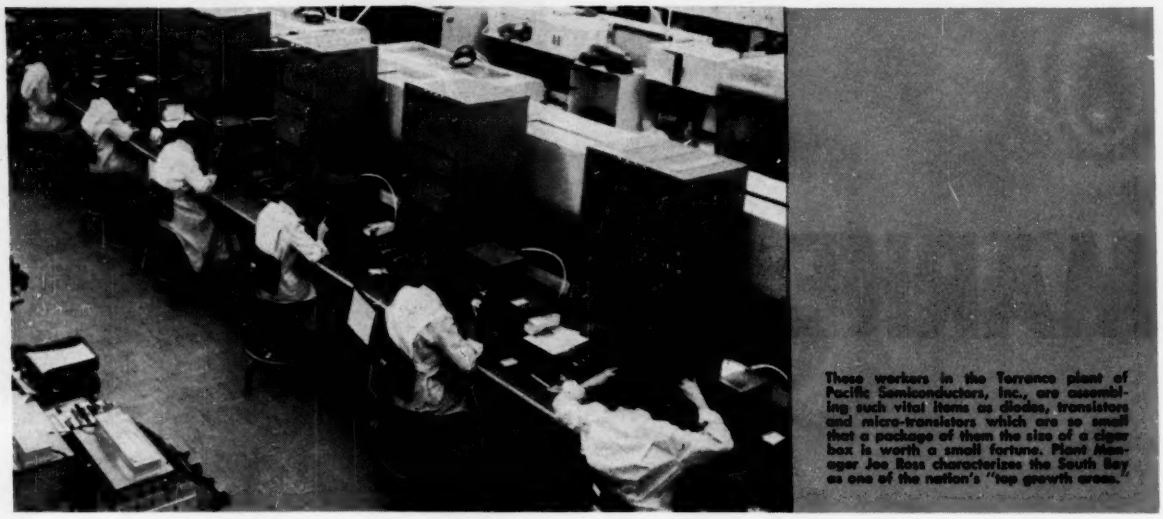
quarters, research and engineering laboratory building. This facility, to be on a 40-acre site, will employ between 500 and 600 persons.

In response to a question concerning the choice of this area for the semi-conductor plant and the new project, Mr. Ross said: "Southern California has a very strong lure for people, making it one of the top growth areas. That, in turn, along with other factors, attracts industry.

"We have no trouble recruiting the kind of workers we need," he continued, "including all skills from the lowest to the highest. These people are steady, dependable, and our absenteeism rate is very low relative to the industry average."

Mr. Ross made the point also that residential sections here are unexcelled, the climate is balmy the year around, and recreational facilities are extensive and highly varied.

Items made at the plant include such things as diodes, transistors, micro-transistors, and so on. These products are so small that a package of them the size of a cigar box is worth a small fortune. They are shipped to a world-wide market,



These workers in the Torrance plant of Pacific Semiconductors, Inc., are assembling such vital items as diodes, transistors and micro-transistors which are so small that a package of them the size of a cigar box is worth a small fortune. Plant Manager Joe Ross characterizes the South Bay as one of the nation's "top growth areas."

almost entirely via air express.

"The Los Angeles International Airport is conveniently close to us," Mr. Ross added, "and we get excellent air service to any point on the globe."

An additional new development here is an expansion program just announced by Harvey Aluminum (Incorporated). The company, one of the six producers of primary aluminum in the United States, will increase production capacity of its plant by 25 per cent.

Harvey Aluminum's products are sold to a large number of customers, principally in the building, aircraft, transportation, furniture, appliance and electric industries, each of which is well represented in this area. The company also produces zirconium products for use in nuclear reactors, and titanium products for sale primarily to the aircraft and missile industries.

Another one of the important existing facilities in the South Bay area is the operation of Vickers Incorporated. Plant Manager Don G. Wilson said that before the decision was made for the present location the company investigated various sites in Southern California, looking for a place that would best fulfill requirements for the western region activities of Vickers in support of the aircraft and missile industry.

"The criteria for these investigations," Mr. Wilson explained, "were convenience to customers, community advantages for employees, and growth potential. The South Bay location was chosen because it best fulfilled all these requirements."

Mr. Wilson stressed further that the location here is convenient to the airport, is in an unusually attractive area of beautiful homes and extensive beach and water sports activities, and that the plant is on a site offering substantial room for expansion, commensurate with project activities.

Following are further examples of what executives of important plants here have to say about this area:

Ted Coleman, president of Coleman Engineering: "Among the many reasons a business firm uses to determine a new location are schools, weather, transportation, housing and local government. Schools are considered an excellent investment, and the South Bay Area's are the best in the state.

"Weather is also studied, and the prevailing westerly winds in this area do much towards providing a constant air-conditioned atmosphere that is smog free. Housing conditions are excellent in the immediate area with availability in all wage and salary brackets.

"With completion of the freeway systems in the north, east, west and southerly directions, the South Bay Area will be very convenient and accessible to the overall sales area of the Los Angeles Basin. The attractive stretches of seashore provide all forms of water recreation as well as an incorporable view for residences."

Don Hyde, superintendent of industrial relations, Columbia-Geneva Division of United States Steel Corporation: "Shortly after the turn of the century, Jared Sidney Torrance, far-seeing founder of the city named for him, used to range the countryside to persuade settlers to settle here. For many years the city's two earliest firms, Union Tool Company and Lewellen Iron Works (the

latter a predecessor of U.S. Torrance Works), were the largest employers, with a combined payroll of a few hundred persons and producing a relatively few items.

"Today, by contrast, the gross Torrance production covers the industrial alphabet from aircraft to zippers, with the firms making these goods employing 65,000 persons at an annual payroll of $350 million. Moreover, this established economic diversity each month is augmented by an average of two new companies moving in to swell the monthly community paycheck by a sizeable amount. What better way is there to illustrate Torrance as the City of Industrial Progress and Opportunity and one with a good industrial climate?"

Frank L. Smith, sales manager for the Western Division, West Virginia Pulp and Paper Company: "The South Bay Area was chosen as the site for our firm because it is conveniently located by the harbor and has good railroad facilities, both of which are important for our facility.

"The area is a good, clean place to live, with a favorable attitude of the city toward industry. There is also a skilled labor pool which our firm investigated thoroughly before locating here."

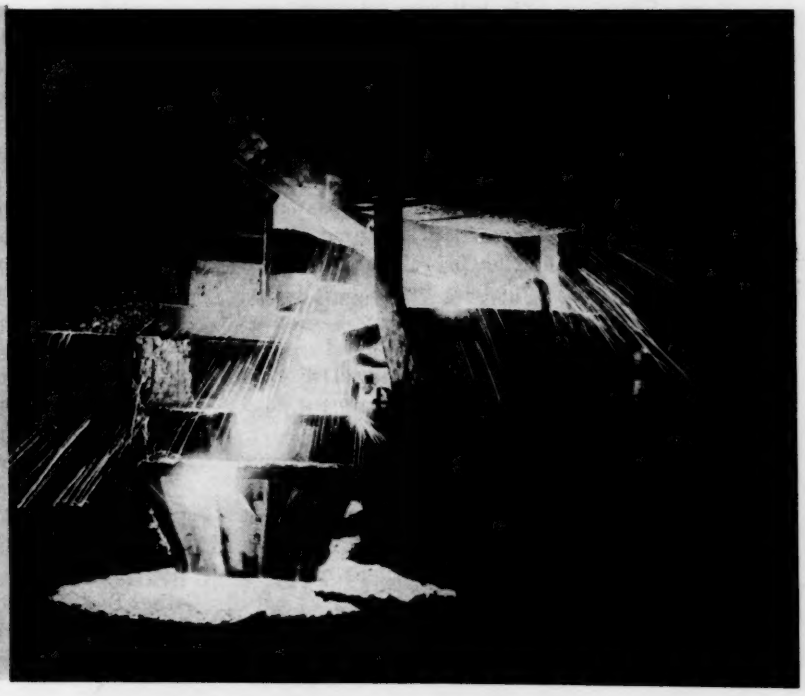
J. D. Spalding, works manager, The National Supply Company: "As a pioneer industry of Torrance, we have observed the tremendous industrial development of the South Bay Area over almost a half century. With the proximity of both rail and harbor facilities, skilled personnel, and a friendly and cooperative community atmosphere, we have had many occasions to appreciate the location advantages for industry in this area.

"At the National Supply Company's Torrance plant, we are always aware of the conditions which many years ago led us to adopt the plant slogan: 'Since 1912 — A Good Place to Work.'"

At Harvey Aluminum we learned that the company was founded in 1914 in the City of Los Angeles. Due to expansion necessity, however, they investigated this area and decided to move to the South Bay. The reasons given for the move included good transportation facilities, a high calibre of personnel, excellent climate and community advantages for employees. The "good business climate" point was stressed particularly.

Torrance Wins National Award

How well the City of Torrance has succeeded in bringing the area's attractions to the attention of the nation may be seen in the fact that the Torrance Chamber of Commerce on May 2, 1960, was officially presented the top "program of work" award by the Chamber of Commerce of the United States. The presentation was made during the U.S. Chamber's Awards and Recognition Banquet



With its predecessor company, the Torrance Works of Columbia-Geneva Steel Division, United States Steel Corporation, is one of the older corporate citizens of the South Bay area. Here white-hot metal from one of the plant's 60-ton open hearth furnaces pours into a huge ladle as the heat is tapped. Don Hyde, superintendent of industrial relations for the facility, said the growth of the plant is a perfect illustration of the fact that "a good industrial climate" prevails in this area.

Representative of the new architecture, and community services offered, in the South Bay is this handsome Torrance City Hall. The structure is located in the city's new Civic Center. The visitor will be much impressed at the explosive rate of growth occurring here in residential, commercial and industrial construction.

in Washington. It marked the first time that any Chamber in California had ever received the top national award.

Torrance leaders on hand for the event included Chamber President J. H. Paget, Immediate Past President Fred W. Mill, and Manager Dick Fitzgerald.

Mr. Paget declared, "This is the greatest thing that could ever happen to a chamber and the community it represents."

The observation of U.S. Chamber District Manager Harry Lintz was: "In my over 20 years representing the National Chamber throughout the nation, I've never witnessed such a dedicated and aggressive group of people as in Torrance."

A previous honor won by Torrance was its designation in 1956 as an "All America City."

As we noted earlier, the greatest growth in Torrance has occurred just during the past decade, and it has certainly earned its name as the "Planned-Modern Industrial City." There are more than 250 "blue chip" industrial firms with facilities here.

It also has developed into a commercial center. Outstanding in this category is the new Del Amo Shopping Center, a $40 million development covering 88 acres.

New construction is continuing at a rapid pace, the total building permit valuation for the first quarter of 1960 being more than $13.247 million. That total included large numbers of commercial and industrial structures as well as multiple dwellings and single dwellings.

You may be assured of finding adequate housing in Torrance. We saw literally hundreds of homes under construction here, along with many apartment buildings. As of April, 1960, there were 28,532 dwelling units in the city, up from 7,200 a decade earlier, according to figures supplied by the Regional Planning Commission, County of Los Angeles.

Another interesting fact about Torrance, and one that will soon become apparent as you stroll around the city, is that this is an area of youth. The average age of the citizenry is 25.5 years, and more than half of the population is under 21 years of age.

To provide educational facilities for this burgeoning population of children, Torrance has been constantly expanding its school system. There are now 33 grade schools and three high schools in the city, with a total enrollment of approximately 24,000. There are also seven parochial grade schools and one high school, as well as a school for retarded children.

Active participation by Torrance citizens in affairs of the community is reflected in the 205 civic and service organizations here. Adequate health care is provided by three general hospitals and a county hospital with a total of 939 beds and 88 bassinets. The Catholic hospital has 150 beds and 40 bassinets.

The city has 85 acres of land in city parks, while 25 more acres for park development are in the planning stage. There are one and a half miles of beach frontage, lifeguard patrolled, and additional fine beaches are only a short distance away in other Bay Area communities.

The residential and commercial areas, as well as the huge industrial complexes here are pro-

Beautiful parks, with tropical growth and multicolored displays of flowers, are an outstanding characteristic of the South Bay. The parks, such as this Torrance Municipal Park, provide extensive areas for pleasant recreation. Altogether, Torrance has 85 acres of land in city parks, while 25 more acres for park development are in the planning stage.

tected by an 87-man police force, while the fire department has 82 men operating from four stations.

Important to industry here is the availability of extensive transportation facilities. Railroads serving the area are the Santa Fe, Southern Pacific, Union Pacific and Pacific Electric. These maintain team and spur tracks which handle carload and LCL shipments to any point in the nation. The Railway Express Agency handles express to all parts of the world, with pick-up and delivery within published limits.

In addition, the facilities of more than 50 truck companies are available for highway transportation, and the Los Angeles Harbor, only seven miles away, offers access to worldwide shipping. The Los Angeles International Airport, also close by, provides air service to points anywhere in the world.

Religious and cultural activities have kept up with other growth here, and Torrance citizens can find a church of their choice among the 45 churches in the city. The public libraries offer more than 28,000 volumes, and in addition to the widely-read Los Angeles dailies, there are two bi-weekly Torrance newspapers.

Special annual events which bring many visitors to the city are "Ranchero Days," held the last week in July, and the Armed Forces Day Parade held the third Saturday in each May.

Torrance has the manager-mayor-council form of government and is well known for its efficient city administration. The present mayor, Albert Isen, is a dedicated individual who participates vigorously in virtually all civic events and who is second to none in rolling out the red carpet for visitors. He asserts that, "Whatever good and progressive you may be looking for, you can find it in Torrance."

Planning Director here is George G. Powell. Under his direction the Planning Department carries out a master plan which protects all facets of community development — residential as well as industrial and commercial.

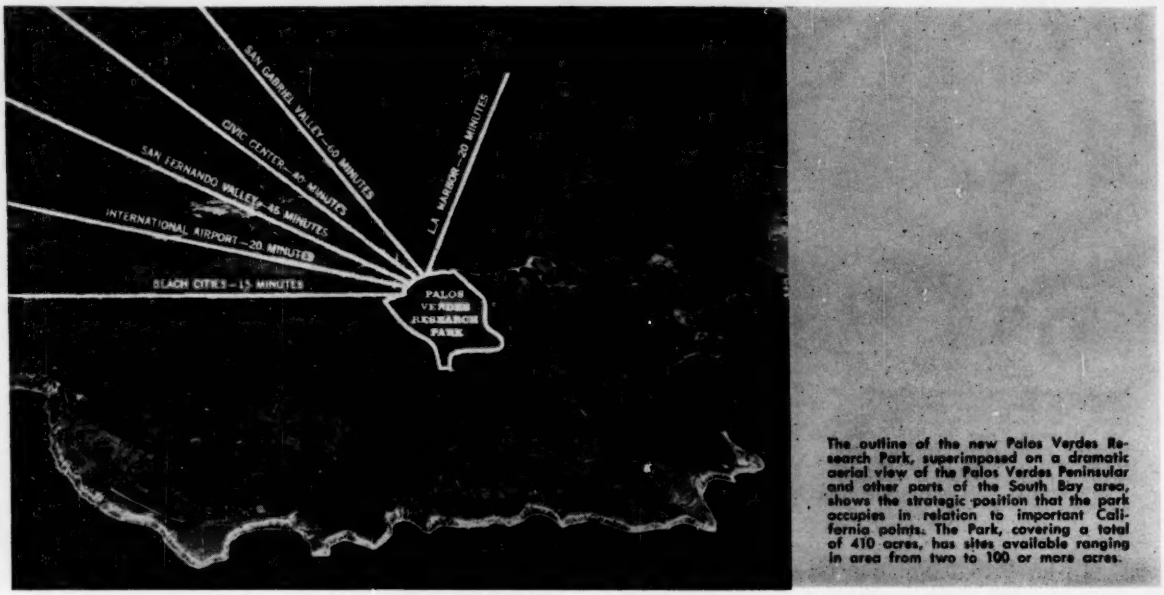
Of the close to 2,000 acres of undeveloped property remaining in the city, more than half is under industrial zoning. Other industrial property is available in adjacent unincorporated areas of Los Angeles County. Altogether, Torrance has 21.125 square miles within the city limits, and the city is located 16 miles south of the City of Los Angeles.

The Palos Verdes Research Park

One of the most significant developments in the South Bay area is the Palos Verdes Research Park. It covers 410 acres of gently rolling plateau, with an elevation of approximately 1,200 feet.

The park is being developed by Great Lakes Properties, Inc. William C. Jones, manager of property development for Great Lakes, who took us on a tour of the area, explained that the basic layout has been one to ensure adequate roads and efficient land utilization. He said the roads within the park are planned to discourage through traffic, yet connect conveniently with the main thoroughfares and the adjacent town center.

Sites are available ranging in area from two to 100 or more acres. Further, smaller rental units will be available in the area being planned for the Research Group facilities.



The outline of the new Palos Verdes Research Park, superimposed on a dramatic aerial view of the Palos Verdes Peninsular and other parts of the South Bay area, shows the strategic position that the park occupies in relation to important California points. The Park, covering a total of 410 acres, has sites available ranging in area from two to 100 or more acres.

Exhaustive studies through the Stanford Research Institute and other groups have indicated that recruiting and personnel turnover problems should diminish and creative output expand in this campus-like environment.

He emphasized, too, that development of individual sites will be guided by specific restrictions and covenants to maintain the high architectural and standards necessary to preserve the campus-like nature of the beautifully landscaped park.

A special feature will be the Town Center adjacent to the park area. It is designed to become the focal point for marketing, cultural and civic activities on the Palos Verdes Peninsula. It will include such things as a shopping center, office and apartment buildings, motel-hotel accommodations, hospital, public library and auditorium.

Now under construction at the Park is a new research center for Nortronics, a division of Northrop Corporation. The initial unit will have 120,000 square feet of floor space. This will be part of a master plan complex to cover more than 350,000 square feet.

On a 50-acre site, the center will employ about 500 persons when activities begin, and this is expected to increase to employment of up to 4,000. Research into the frontiers of technology and space travel will be conducted here with the most modern facilities possible.

Following our visit to the Research Park area, we took a tour of Palos Verdes Estates with John Biesmann, manager of the Chamber of Commerce for that community. Located in the northwestern area of the peninsula, Palos Verdes Estates is a very much above average residential development, beautifully planned and landscaped.

In this area the executive can build or buy a home overlooking the Pacific ocean and the sprawling complex of cities in the Bay area, and he can enjoy weather that is pleasant all year, and smog free.

Like the other communities here, Palos Verdes Estates has enjoyed phenomenal growth, the population having expanded from 1,963 in 1950 to 9,288 at the latest count. New home-building continues to go on apace, and there is still plenty of room for a lot more growth.

All the factors for good living may be found here, and your children are assured of having excellent educational facilities. The Palos Verdes School District, an independent system, provides eight beautifully landscaped and completely equipped schools conveniently located throughout the peninsula, and there are also private and parochial schools here.

The Peninsula itself is characterized by a series of gently sloping, rolling plateaus or terraces descending to the sea. East and south of Palos Verdes Estates on the Peninsula are the residential communities of Rolling Hills and Rolling Hills Estates. Here the executive can find home sites that are extraordinarily beautiful and most exclusive in nature.

In addition to the magnificent homes here, you

will see in a drive along the winding streets and roads of the Peninsula colorful displays of flowers that defy description and spectacular views of the Pacific Ocean. We reiterate that what is here has to be seen to be believed.

A New Harbor for Redondo Beach

One of the popular recreational spots in the Greater South Bay Area is Redondo Beach which carries the cognomen of "California's Neptune City."

A spectacular new development here, currently under construction, is the Redondo Beach Small Craft Harbor. Located in the southernmost curve of the Santa Monica Bay Crescent, the marina development will have three moles and several basins designed to handle more than 2,000 boats of all sizes, water berthed as well as shore facilities for berthing.

Included will be parking space for up to 3,100 cars, and 26 acres of land in the area will be zoned commercial with sites for such things as hotels and motels (as well as boatels), restaurants, automobile and boat service units, boat and motor sales facilities, general shopping district and cabana buildings. A marine park and swimming inlet is planned in the southern part of the small craft harbor.

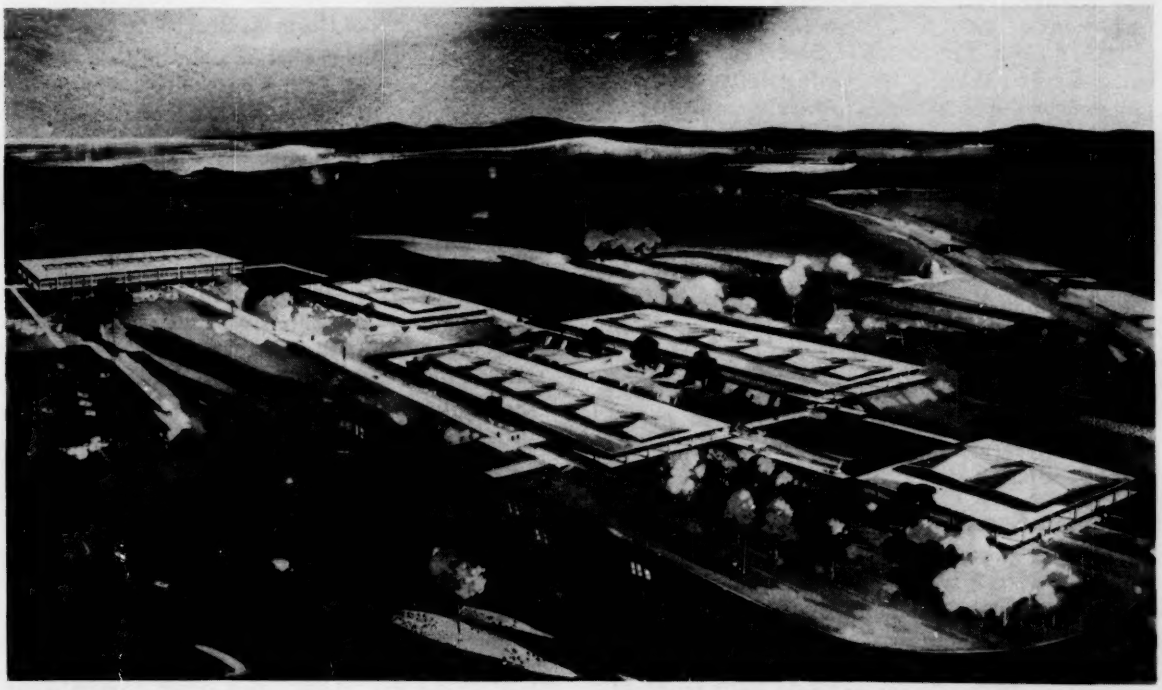
During our visit to Redondo Beach, Manager Ed Just of the Chamber of Commerce pointed out that the central business district adjoins and partially surrounds the small craft harbor. As the harbor grows, he stressed, the business district must keep pace, and the city has already laid out the plans to take care of this double-barreled development.

Although the city has been incorporated since 1892, its greatest growth has been in the past few years, the population having increased from 25,226 in 1950 to a current 48,536. The number of dwelling units here totaled, at latest count, 15,641.

Besides its fine beach, where water sports are enjoyed the year around, Redondo Beach has many other amenities which enhance it as a place to live.

The city has two public libraries, 39 churches, 60 civic and service organizations, five shopping areas, two theaters and 12 hotels and motels.

High educational standards, with well-paid teachers, characterize the school system here. There are 16 elementary schools, with classes from kindergarten through the eighth grade, and two



Nortronics, a division of Northrup Corporation, has under construction in the Palos Verdes Research Park a research center which will be devoted to studies in the fields of technology and space travel. The initial unit will have 120,000 square feet of floor space, and this will be — as shown in the artist's drawing — part of a master plan complex to cover more than 350,000 square feet.

Being built at Redondo Beach is a small craft harbor which will have all facilities for berthing more than 2,000 small boats. The breakwater at right is already in existence, while berthing facilities are shown in an architect's rendering. Included in the development will be parking space for 3,100 cars, and 26 acres of land in the area will be zoned commercial.

high schools. These are supplemented by parochial schools.

Features of the school system include special classes provided for the mentally and physically handicapped, and a guidance department with three full time school psychologists.

A new hospital was recently completed here, and another hospital is scheduled for completion in July, 1960.

The city limits of Redondo Beach embrace 6.028 square miles. Among the industrial sites available is a parcel of 200 acres owned by and adjacent to a line of the Sante Fe Railroad. Some type of plant which will utilize rail transportation is being sought for this site, Mr. Just said. He added that there are several other smaller sites in the city available for industrial and commercial development.

Concerning the future, Mr. Just said: "From its status in 1960 as one of several beach cities on the Crescent Bay, Redondo Beach is undertaking a master plan of development that will see more change and carefully controlled growth in the next few years than in the entire previous history of the city."

Hermosa Beach Plans New Civic Center

Our next host on the tour through the South Bay area was C. W. (Bill) Shepherd, manager of the Hermosa Beach Chamber of Commerce. The city is north of and adjacent to Redondo Beach.

On the planning boards for Hermosa Beach, Mr. Shepherd told us, is a huge new city auditorium which also will incorporate a number of other features. The front of the proposed structure will face the center of the downtown area, and it will extend out over the water.

Besides the auditorium, it is planned that the building will contain work shops, exhibit rooms, offices of the Chamber of Commerce, and a pier.

"What we have in mind," Mr. Shepherd said, "is really a tremendous project and is one that should greatly enhance the recreational and cultural attractions of Hermosa Beach."

The beach itself is part of a strand that is rated the finest on the Pacific Coast and is popular the year around. The boundaries of the city are such that virtually all parts of it are in sight and sound of the mighty Pacific surf.

The latest figures here showed a population of 16,678, up from 11,826 a decade ago. The newest count on dwellings showed a total of 6,815.

"Hermosa," Mr. Shepherd stressed, "is a resort and home city — clean, neat and uncluttered. It is very popular with vacationers, and it is also a self-complete city for the year-around residents.

In addition to the beach, other recreational facilities here include municipal playgrounds with tennis courts, baseball diamonds, lawn bowling and indoor bowling, deep sea and surf fishing, and other features.

An annual event which attracts many visitors is a three-day celebration called "1912 Days." Residents dress the part. Men grow beards, and women don shirtwaists and long skirts. There's a parade of horseless carriages, and there are bands, clowns, and film stars on hand. The affair is climaxed with a 1912 Days Ball at which a queen is crowned.

One of the newer motor inns in the South Bay area is the Redondo Beach Plush Horse Inn which features complete tourist and convention facilities within a few minutes walking distance to the ocean. The Plush Horse also has an excellent and beautifully appointed restaurant.

An annual event in Hermosa Beach is a three-day celebration called "1912 Days." For the occasion the men grow beards and the women don shirtwaists and long skirts. During last year's celebration some of the participants were guests on the Steve Allen show. Here (left to right) are Carol Hughes, Hank Weaver, Elissa Plotnoff, Steve Allen and Cheryl Benson.

Another distinction claimed by Hermosa Beach is that it is the birthplace of modern jazz on the West Coast. Since many noted instrumentalists perform here, critics and fans from all over the nation, as well as Europe, converge on Hermosa's Jazz concerts.

As a community of homes and growing families, Hermosa offers good educational facilities through its six elementary schools and two high schools.

Active civic and fraternal groups here include such organizations as Women's Club, Rotary, Teacher's Club, Navy Mothers, American Legion, Elks, Boy Scouts, Masons, Shrine Club, Kiwanis, Lions, Garden Club, Sandpipers, Optimists, Catholic Club and 20-30 Club.

In other comment about the city, Mr. Shepherd said: "Hermosa has a council-manager form of government, which is very sound; up-to-date fire and police protection and other municipal services, and an equable tax rate."

Although Hermosa is not an industrial city, it has a full complement of retail and food stores, shopping centers, specialty shops, financial institutions and restaurants. There are also library facilities adequate for the area and churches to serve citizens of many denominations.

Manhattan Beach—"Vacation Every Day"

Traveling farther northward along the Pacific Coast Highway, we left Hermosa to take a look at Manhattan Beach which Chamber of Commerce Manager Cliff Webster described to us as a place "where living all year 'round is vacation every day."

An event which attracts many thousands of visitors to Manhattan Beach is the International Paddleboard Race from Catalina Island to Manhattan Beach. The race is known world-wide. Here, gazing out across the infinity of the Pacific, is Robert Hogan, originator of the Paddleboard Race.

Also a city of homes and resort accommodations, Mr. Webster pointed out, Manhattan Beach is a prosperous community, the average earner here having an annual income of $7,000. The range of homes is from modest to those in the upper brackets.

While here we enjoyed an excellent seafood lunch at the Pen & Quill restaurant and learned that the P&Q people are planning to build a luxurious new hotel. It will have 135 beautifully equipped rooms and 30 suites, officials said.

Manhattan Beach is particularly proud of its schools, as it has a system ranked as one of the outstanding ones in all of California, Mr. Webster observed.

Included in the system are eight modern elementary schools (kindergarten through the sixth grade), and two intermediate schools (seventh and eighth grades) which have an enrollment of more than 6,000 children.

The high school, Mira Costa, is large, modern and comprehensive. It has 95 faculty members providing a fully-accredited formal education for more than 2,000 students in grades nine through 12. It also provides facilities for adult education.

Constructed along contemporary lines, all classrooms here provide facilities for school and wide community use. The two swimming pools here provide instructional facilities as well as recreational, and the $750,000 auditorium offers seating for 1,500 persons.

Growing like the rest of this entire area, the population of Manhattan Beach has expanded from 17,330 to 34,909 during the past 10 years. And, the city planners here anticipate that within the next decade this will be a city of 45,000.

For these citizens the city offers complete shopping facilities within the city limits. Manhattan Beach has also completely staffed and well-equipped police and fire departments, and the result is that the community has a very low incidence of crime, fire and juvenile delinquency. Local government is the city manager-council form.

In the cultural field here, the Beach Cities Symphony Association and the South Bay Arts Association offer ample opportunity for creative effort and artistic appreciation. Several little theater and choral groups operate within the city which is headquarters for SPEBSQSA, Inc.

It is interesting, too, that Manhattan Beach's two branches of the Los Angeles County Library have the highest per capita circulation of any in the County, and regularly more non-fiction than fiction titles are sought.

The churches here include those of virtually all major faiths, and practically all the nationally prominent fraternal, social, and philanthropic organizations have established an active group within Manhattan Beach. In addition, social activities are offered by such purely local groups as the Neptunian Women's Club.

Along with skin-diving and other water sports, surf-boarding is particularly popular here. An event in this field is the International Paddleboard Race from Catalina Island to Manhattan Beach. The 1960 event is being co-sponsored by the Los Angeles County Parks and Recreation Department and the City of Manhattan Beach.

Altogether, the city's recreational facilities are such that the area has been designated as a State Park.

El Segundo—Personification of Industry

In contrast to the Beach cities, El Segundo was founded as an industrial city, and 70 per cent of its total area is zoned for manufacturing. Most of this is heavy manufacturing. North of Manhattan Beach and adjacent to the Los Angeles International Airport, El Segundo actually is the center of some of the biggest industrial complexes on the Coast.

As you drive through this area you will see plants bearing the names of some of the best known manufacturing firms in the nation.

Outstanding among these is the sprawling multi-million dollar refinery of Standard Oil Company of California. The site for the refinery was chosen in 1911 in what was then a desolate area of sand and melon vines. Since the refinery was to be the second built in California by the company, the name El Segundo was chosen, that being the Spanish phrase for second. The refinery town officially received that name in 1917 when the population had grown to 1,000. The city's own translation of its name is "Second to none."

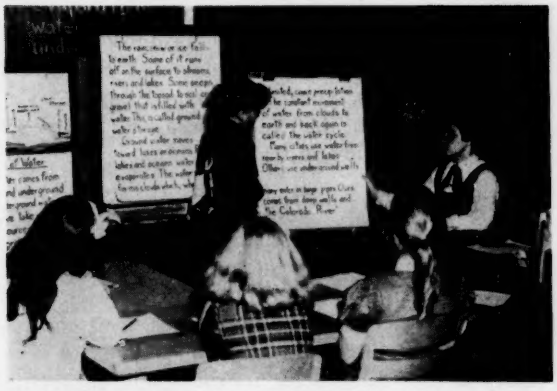
Latest figures on El Segundo's population give the city a total of 14,924, up from 8,011 in 1950, and the number of dwelling units is 4,960. Many of the workers in plants here commute from the nearby strictly residential communities, as the city's plants employ more than 50,000 persons.

Because of adequate zoning and planning, the residential areas of El Segundo have commercial buffer zones separating them from the manufacturing complexes on the west and east sides, while the Pacific forms a border on the west and the open area of the airport is the northern border.

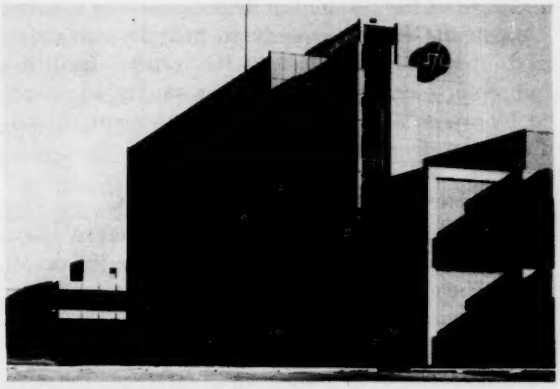
With a total of some 350 manufacturing plants, El Segundo is a leading producer of such things as aircraft, machine products, electronics, furniture, petroleum refining, chemicals, cosmetics and food products.

Frank M. Reid, manager of the El Segundo Chamber of Commerce, pointed out that there is still room for both industrial and residential growth here, and it is estimated that the population can increase up to 50 per cent under the present zoning for residential areas.

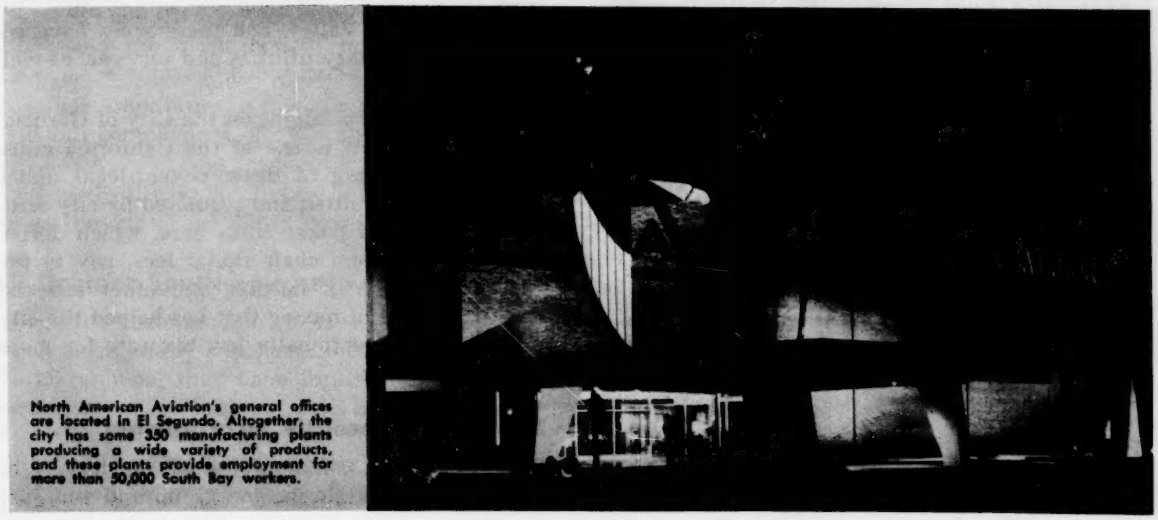
Covering an area of 5.66 square miles, El Se-



Fine, excellently-equipped schools are characteristic of the communities in the Bay Area. In this Manhattan Beach classroom split reading in the different grade levels is one of the techniques used which tends to give more individual group attention during the reading period.



Space Technology Laboratories, Inc., the nation's largest scientific and engineering organization devoted exclusively to ballistic missile and space research, recently consolidated and expanded its operations with a move into these new and larger facilities at El Segundo.



North American Aviation's general offices are located in El Segundo. Altogether, the city has some 350 manufacturing plants producing a wide variety of products, and these plants provide employment for more than 50,000 South Bay workers.

gundo has 59 miles of paved streets. In connection with this it is a noteworthy fact that the city has no parking meters, a rare thing these days.

El Segundo also can boast of having a fine school system which includes three elementary schools, one junior high, and one senior high school. There is, in addition, a parochial school and a nursery school. Enrollment in the public schools in the current session is 3,559, while the parochial institution has 182. There are 182 persons enrolled in adult education.

The community has the council-manager form of government. The efficiency of its administration is proven by such things as the excellent planning here, no bonded indebtedness, a comprehensive and continuing public works program, and outstanding recreational facilities in El Segundo. In the latter category is a recently completed $1 million recreation center which is on a site of 12.5 acres and adjacent to the Civic Center and most of the residential area.

Since the city is already so heavily industrialized, it has corollary massive utility facilities, complete sewer system, a water supply augmented by wells, and a complete complement of municipal services.

Gardena—"The City of Freeways"

The center of an area known as Gardena Valley, the City of Gardena is only 6 miles from the ocean and its beach recreation areas are just a few minutes' drive away.

According to Charles T. Welton, manager of the Gardena Valley Chamber of Commerce, the city itself has a current population of 36,317, as compared to 14,405 ten years ago, and it covers an area of five square miles. The Gardena Valley area, including the city and parts of Los Angeles city and county, covers 16 square miles and has a population estimated at 115,000.

Like some of the other South Bay communities, Gardena is primarily a city of home owners where workers in offices, stores and factories may live close to their jobs in pleasant, uncrowded surroundings. The present count is 11,520 dwelling units here.

"Hundreds of new homes are being completed here every month," Mr. Welton told us, "and home ownership among the city's citizens runs well over 80 per cent."

To accommodate its growing population, Gardena has several complete shopping centers. Governed by its own five-member city council, Gardena has its own sewage disposal facilities and, as a member of the Metropolitan Water District, it has an ample water supply. There are better than 60 miles of paved streets within the city.

The city is easily accessible, with Sepulveda Freeway on the west and Artesia on the South. The Harbor Freeway, linking Los Angeles and the Harbor area, is just east of Gardena's easterly city limits, the city itself being located midway between Los Angeles and the Los Angeles harbor. Gardena is referred to as "the city of freeways."

Youth and recreational activities here are centered around Gardena's modern Community Building. It contains 13,300 square feet of floor space and includes an auditorium which will seat 400 persons.

In addition, here and at Gardena's other parks and playgrounds there are full time assistants supervising a varied program of recreation, sports and crafts.

Thirty-eight religious denominations are represented in Gardena, and the community's modern public school system is supplemented by several parochial schools, vocational school, and El Camino College. In the Valley area virtually all service clubs, civic and fraternal organizations are represented.

In the Gardena Valley as a whole there are more than 500 industrial and manufacturing operations. They produce such things as airplanes, guided missiles and allied products, plastics, toys, ceramics, trailers and mobile homes, heat control units, glass products, furniture and novelties. The Valley is also famous for its mink and chinchilla farms, and its modern, well-kept nurseries.

For continued industrial growth, Mr. Welton said, there are considerable acreages of land still available in the Valley, and these areas have access to all necessary utilities and services, as well as transportation.

An interesting sidelight on the City of Gardena is the fact that it is one of the California cities where the playing of draw poker, legal under state law, is permitted and regulated by city ordinance. The draw poker clubs here, which derive their revenue from chair rental fees, pay to the City of Gardena in licenses and other assessed fees an amount of money that has helped the city maintain an exceptionally low tax rate for more than two decades.

Lawndale—Recently Incorporated

Lawndale is a community made up largely of homes in the middle income group and was just

recently incorporated. It is located north of and adjacent to Torrance and is just west of Gardena.

The city has a population of approximately 22,509, and 6,814 dwelling units. Frank T. Hogan, manager of the Lawndale Chamber of Commerce, said there is room for considerably more home-building, and the chamber is actively promoting a growth program.

Lawndale also has important commercial activity, Mr. Hogan pointed out, and a number of additional sites are available.

Because of the recent incorporation the chamber is still in the process of assembling and organizing information about the city but is ready to give constructive aid to newcomers.

Lawndale is only minutes away from the various beaches and recreational areas of the South Bay, and the city also has its own Civic Center. Outstanding among the parks is adjacent Alondra Park which has a swimming pool and bathhouses, playground area, two soft ball fields and a baseball diamond, as well as a recently completed recreation building with 5,000 square feet of floor space, and a paved patio of about 10,000 square feet.

Important here, too, is the new Lawndale Health Center. It serves a population of approximately 60,000 persons in a nine-square-mile area comprising Lawndale, Alondra Park community, portions of Redondo Beach, Hawthorne and adjacent communities.

The Lawndale Library is regarded as one of the finest in Los Angeles County, and it has served as a model in the planning of libraries for other communities. It has more than 10,000 volumes.

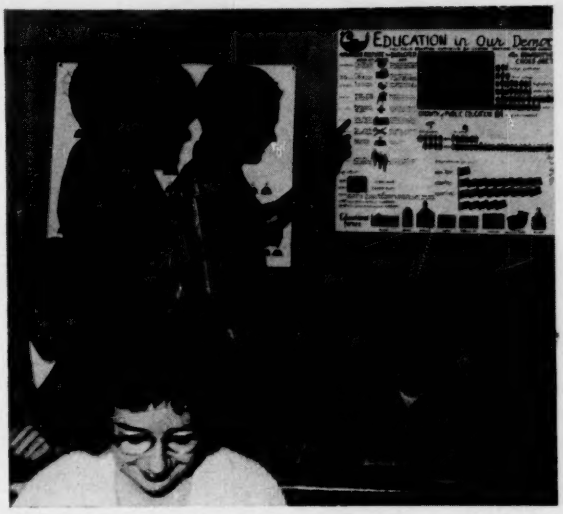
The city has 10 elementary schools, two high schools and one trade school. All equipment is excellent, and the most modern instruction techniques are employed throughout the system.

Like the other cities in this area, Lawndale also has a full complement of civic and fraternal organizations.

"Altogether," says Mr. Hogan, "we regard Lawndale as the hub of the South Bay Area."

The Greater South Bay Area as a Whole

Since the communities we have discussed here are so closely knit and have a variety of interests in common, they have formed an organization known as the Greater South Bay Area Council of Chambers of Commerce. Through this organization the chamber managers and presidents of each of the communities work together toward promoting the entire area, as their reasoning is, quite logically, that an important development in any one of the cities is almost certain to benefit, in one way or another, the entire area.



Lawndale is a city of homes, and great stress is laid on the quality of its school system. This teacher at Rogers Elementary school in Lawndale is working on a study of "Education in our Democracy." Eighth grade students make a thorough study of the U.S. Constitution and are required to pass a comprehensive test in this area before advancement to high school.

The communities also get a great deal of cooperation from the Bank of America which works very closely with them in the development programs.

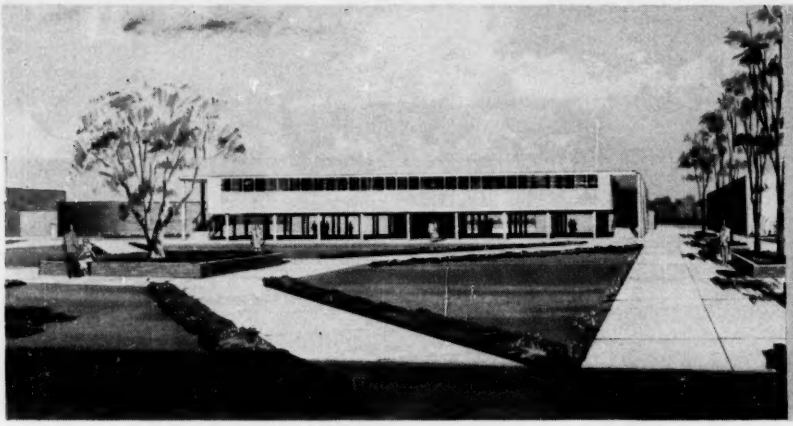
From the standpoint of the site-seeker, this cooperation is particularly beneficial, for it means that whomever you may contact in the South Bay area will be genuinely helpful in pinpointing the particular kind of location you need anywhere in the industrially and commercially zoned parts of the area.

An asset which the entire South Bay enjoys is mild weather the year around. Temperatures range generally from an average minimum of 49.7 degrees to an average high of 76.6, and the average mean is 62.6 degrees. Another outstanding asset throughout the area is that breezes from the Pacific keep all the South Bay virtually smog free.

Transportation-wise, the area is particularly well off with its systems of freeways, highways and roads, and around-the-clock truck, air and rail services, plus the Los Angeles harbor.

Electrical energy is supplied by Southern California Edison Company, while natural gas is available through Southern California Gas Company. Both these utilities have extensive and continuing programs of expansion and improvement to keep pace with the development of the area.

While there is some variation in tax rates among



The ultra-modern and functional architecture of the schools in the South Bay area blends well with the verdant countryside and the year around mild climate here. An outstanding example of this new architecture is the new Lawndale High School.

the different communities, all the rates are considered to be reasonable and equitable, and each is lower than that of the City of Los Angeles.

The Greater South Bay Area is part of a concentration of population estimated at 6.5 million (Metropolitan Los Angeles), and this figure will probably be revised upward when 1960 census figures have been tabulated. For the state of California as a whole, which is the second most populous state, the estimate is 14.892 million. It is expected that by 1970 the Los Angeles Metropolitan area will have in excess of eight million population, while it is anticipated that California will reach 20 million to become the most populous state.

You can see, therefore, that any commercial or industrial enterprise that you may locate in the Greater South Bay area is literally in the middle of a market area which is growing at an almost incredible rate.

In addition to the special recreational facilities at the local level, the residents of the South Bay have — in common with the whole metropolitan area — access not only to the beaches but also to the mountains where skiiing, fishing, hunting and hiking can be enjoyed. Desert resorts, only a short trip away, offer a wide variety of activities.

Further, numerous art galleries, museums, libraries, the legitimate theater, concerts, symphonies and operas provide multiple outlets for diverse cultural interests.

Including what Los Angeles has to offer, entertainment facilities are among the most spectacular and varied, ranging from active night life to wide opportunities for sports participation and viewing.

The restaurants here, too, are second to none, and you will be surprised to find that some of the finest eating places in the South Bay area offer gourmet dishes at prices within the reach of a very modest pocketbook.

From the standpoint of education, besides the public school systems we have discussed here, there are in Southern California's 14 counties some 77 colleges and universities providing a constant source of scientific personnel to supplement the many thousands of engineers and scientists already established throughout the area.

These institutions also offer many and varied research and development facilities to business and industry. These facilities are supplemented by research and development work being conducted by the many posts or bases of the Army, Navy and Air Force located in the area, by other departments of the Federal Government, the State of California, and the City and County of Los Angeles.

Besides all these resources, of course, is an abundant work force of a calibre second to none in the nation, for the many attractions of the area bring a constant stream of new residents.

So, if you are considering — or perhaps have never before considered — a western location for your enterprise, you will do well to take a close look at the extensive, and in many ways unique, advantages that the Greater South Bay area has to offer.

The accompanying editorial report on site selection and plant location factors in the Greater South Bay Area of California was sponsored by the Chambers of Commerce of the communities covered in the report and by interested commercial and industrial firms in the area. Reprints of this study are available, on request, from the various chamber managers named in the article.

GAS UTILITIES

Recognizing the need for continued industrial and commercial development in their particular service areas, the gas utility companies have emerged as a potent force in promoting the advantages their areas have to offer, and many of them are in a position now to offer you constructive aid with your site selection and plant location problems.

AN ANNUAL PROGRESS REPORT BY

INDUSTRIAL DEVELOPMENT MANUFACTURERS RECORD

THE INTERNATIONAL GUIDE TO INDUSTRIAL PLANNING AND EXPANSION

GAS UTILITIES — A GROWING FACTOR IN INDUSTRIAL DEVELOPMENT

Presented here is a resume of the part that gas utilities are playing in area development, facts about their importance in industrial growth, and a list of those utilities which have active industrial development departments.

With competition among various communitities and areas for new industrial payrolls at a new high, the gas utility industry is moving in rapidly to set up development organizations aimed at promoting the factors favorable to industrial growth within their particular service areas.

As a consequence, in many communities where you may be prospecting for a plant site, you can look to the gas utility firm serving the area in which you are interested to give you expert help on pinpointing a spot suitable to your particular needs.

Likewise, some of the gas transmission companies are active in furnishing facts to prospects about the plant location factors in the various states and communities in which their pipelines are located.

A case in point is Texas Gas Transmission Corporation which is now in its sixth year of active industrial development assistance to communities in the eight-state area it serves. The company has 4,146 miles of pipelines extending through Louisiana, Arkansas, Mississippi, Tennessee, Kentucky, Illinois, Indiana and Ohio.

The Texas Gas Industrial Development Department, headed by Glover Cary, functions by gathering basic information, aerial photographs and topographic maps on which plant sites are spotted, and by making surveys of labor, wage rates and tax rates, and gathering other specific data. The department also frequently develops brochures on individual communities, covering the main site selection factors of the particular city.

"We, like other industrial development men," Mr. Cary said, "go to the large industrial centers and make individual calls on prospects who have contacted us. We also work closely with industrial development departments of other utilities and railroads, the designated commissions or departments of each state government, individual state and local chambers of commerce, and with other interested groups."

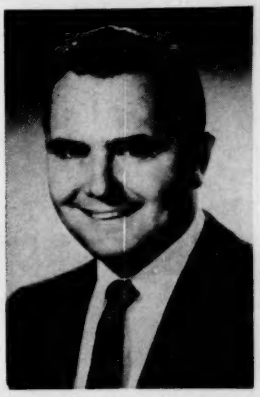
An example of a gas utility firm offering development assistance is South Carolina Electric and Gas Company which has headquarters in Columbia.

This company's program includes giving assistance to communities in organizing development activities at the local level, conducting research on assets and resources of the area, advertising in national periodicals the advantages of the service area and soliciting industrial inquiries, and helping set up local foundations and development corporations.

Another example of a gas utility with an active development program is Arizona Public Service Company, with headquarters in Phoenix.

Serving more than 200 Arizona communities, the firm supplies natural gas to 182,000 customers. During the past decade it has been adding about 10,000 new gas customers each year.

THE AMERICAN GAS ASSOCIATION — A STATEMENT OF POLICY



Ralbern H. Murray, of New York City, is secretary of the American Gas Association's 2,300-member Industrial and Commercial Gas Section which is one of AGA's largest groups. The section has three basic programs — education, sales and promotion.

Since the financial well-being of a gas utility or pipe line depends upon the economic welfare of the customers in the area it serves, the promotion of the highest economic use of the area becomes mandatory. An area development program is a necessity for the survival and growth of a utility. The utility can not pull up stakes and move since its investment is permanently anchored to its service area. There are a number of economic justifications for an area development program. To mention only a few: Area development teamwork can help to effect zoning changes to provide industrial areas, interest financial people in industrial districts, work against discriminatory taxes, legislative handicaps, traffic congestion, and help revise outmoded building codes.

An area development program is also an excellent means of providing good public relations for the gas company with the community, with the collateral money markets and with its stockholders. Area development activities appear to fit into the following three major divisions: (1) Community improvement; (2) Existing industry development; (3) New industry promotion. All three activities are closely tied together. In reviewing the many essentials of an area development program we believe it is necessary, and we encourage gas utilities, to be prepared to work particularly with the following groups within a community, state or area: (1) Civic organizations; (2) State and federal organizations; (3) Development corporations; (4) Planned industrial site builders; (5) Banks; (6) Insurance companies; (7) Railroads; (8) Factory location organizations; (9) Engineering consultants; (10) Local industry.

The gas utility is also prepared to provide:

1. Interest, both courteous and confidential, in plant location or expansion problems;
2. Data, accurate and objective, on sites, buildings, community, county and state taxes, labor laws, labor force, climate, transportation and other such factors.
3. Introduction of principals of agents to reliable and ethical sources of financing, builders, contractors, local officials, etc.
4. Transportation for officials and guidance of tours with factual, low-pressure sales presentations.
5. Preparation of reports, photographs, maps, charts, graphs, brochures, etc. for presentation to other company officials.
6. Follow-through assistance in problems arising after selection of a site. The industrial concern can expect—and will get —continuing interest and assistance from area development personnel of the utility.

The gas utility brings to the problem of area developmen: initiative, enthusiasm and a spirit of cooperation to work with the betterment of a community.

Public Service's area development department has played and is continuing to play an active and aggressive role in publicizing the state's industrial assets. Stress is put on such things as climate, tax structure, transportation, and the labor market. In addition, members of the department have been touring the nation telling industrial prospects about the various advantages of locating in the Grand Canyon State.

An interesting development worked out by Public Service last year is its unique program to sell farmers, who have to use ground water for irrigation, horsepower delivered at the well shaft. Under this plan, the utility furnishes, installs, services and maintains natural gas engines, thus relieving farmers of the financial burden of owning, servicing and maintaining pump driving equipment. Thus far, some 65 company-owned and operated gas engines have been installed in the western part of the state.

This has helped bring hitherto arid desert lands under cultivation in west-central Arizona, thus making the area more attractive to industrialists and opening up new opportunities for development of agriculture-oriented plants.

An excellent example in Canada of a gas utility with an aggressive industrial development program is Northern Ontario Natural Gas Company Limited, Toronto.

Last year the company's Industrial Development and Research Division assembled a study entitled "Some Possible Fabrication Gaps in the Industrial and Agricultural Activity of Northern and Northwestern Ontario."

The book is designed to serve as a check-list for local development organizations and to stimulate ideas leading to the establishment of manufacturing units within the area either to serve consumer requirements or established industrial needs. An appendix to the survey outlines the procedure that an industrial commission may follow in actually evaluating the feasibility of a given industry in locating in a community.

Likewise, the firm works directly with local groups in its service area in helping industrial prospects locate suitable sites within the area.

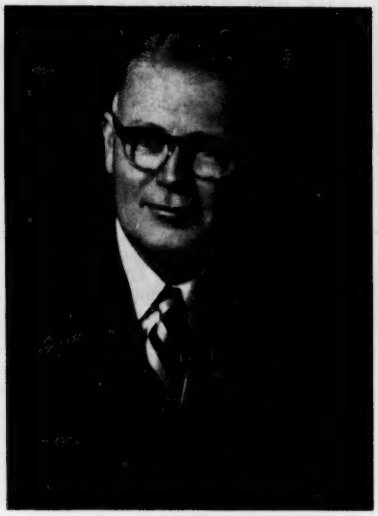
In line with the industrial development efforts being exerted by gas pipeline and gas utility firms there are, of course, continuing programs of new construction and expansion being carried out by these companies to meet growth needs of the areas and communities they serve. In the aggregate these programs run into the hundreds of millions of dollars in cost.

Today, natural gas lines stretch out to virtually all parts of the nation, and this means that you are likely to find adequate gas to fit your particular needs almost anywhere you wish to locate a commercial or industrial installation.

NATURAL GAS—

A BASIC LOCATION FACTOR

Here are some important points to be considered in site selection by those industrialists whose plants may require large amounts of natural gas for one or more phases of its operation.



Leonard W. Crump is director of industrial sales for Oklahoma Natural Gas Company, Tulsa. He is a member of the Task Force of American Gas Association's Industrial and Commercial Gas Section and a strong exponent of gas utility participation in area development programs.

By Leonard W. Crump

"My new plant will need natural gas as its basic raw material. Where shall I locate it?"

To find the answer to this industrialist's question, suppose we ask him one. "What is the priority of natural gas going to be as a 'plant location factor' in your business?"

Generally, natural gas enters the picture as the fuel provided by one of the utility services. This can range from a nominal amount for comfort heating to the large quantities required for heating and processing by the metallurgical, chemical, glass and ceramic, food processing, and textile industries. Huge users, such as power plants, chemical plants, steel mills, cement plants and paper mills use many millions of cubic feet of gas per day. In a growing list of industries it also provides most of the raw material and mechanical power requirements.

Today, a fourth of all our chemicals derive from petrochemistry. Petrochemistry is described as the group of manufacturing processes using hydrocarbons of one form or another as the basic raw material. Thus some of the properties of natural gas may be used by an industry which produces chemicals that later will make insecticides, boat hulls, synthetic fabrics for clothes, fertilizers, automobile tires, and countless other products.

When a manufacturing process needs natural gas as the principal raw material, management finds its chief "plant location factor" must be the availability of this natural resource.

"Availability" doesn't mean merely that you can locate your plant where natural gas is found in the ground. Natural gas, as found in nature has little to offer any industry. It is only after it has been produced, transmitted and converted to natural gas service that it becomes valuable. This is why major emphasis must be placed on the service to be supplied rather than the material.

Therefore, it is the natural gas utility which becomes important as a location factor in this respect. Moreover, if the utility is to be depended upon, it must provide continuity of service. When a plant relies on natural gas as a raw material (or to meet its power requirements), any reduction of deliveries will curtail plant operation. Since many processes are critical as to volume requirements, even a minor reduction would result in complete shutdown. This could mean 24 to 48 hours delay while the process system is cleaned out and started again.

Natural gas service has grown until today its vast network of pipelines reaches to nearly every corner of the United States. In recent years the Pacific Northwest in one direction, and Florida in the other, received natural gas service. Large marketing areas of the country have natural gas service available with many new service areas being developed every day.

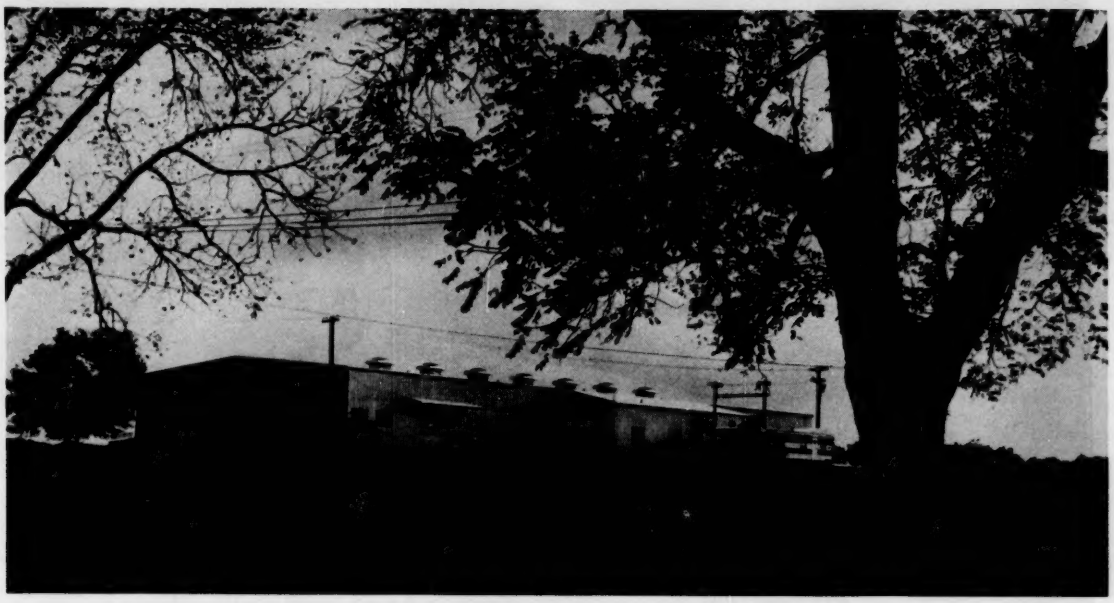
In addition to continuity of service, three other plant location factors have been found to be important considerations.

A petrochemical plant, first of all, must balance price of gas against accessibility to markets.

Second, in many areas of the country, adequate electric power and water at attractive rates is made available only because of good natural gas service at reasonable cost.

Third, in some manufacturing processes, gas is the best fuel because of its application to the job. Several factors have made natural gas a superior fuel for these applications. It is convenient — requiring no handling or storage space. It leaves no ashes and creates no

(Continued on page 80)



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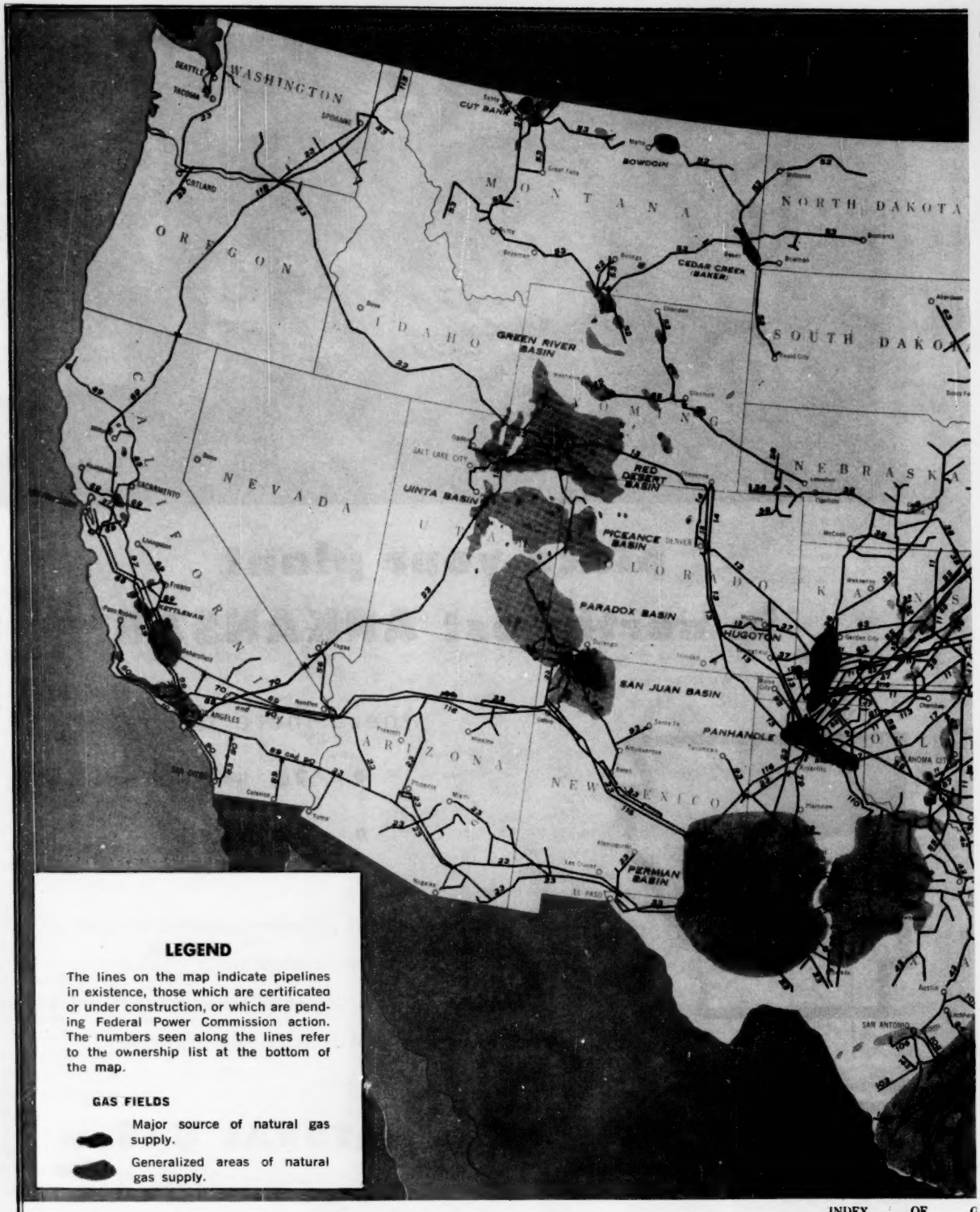


LEGEND

The lines on the map indicate pipelines in existence, those which are certificated or under construction, or which are pending Federal Power Commission action. The numbers seen along the lines refer to the ownership list at the bottom of the map.

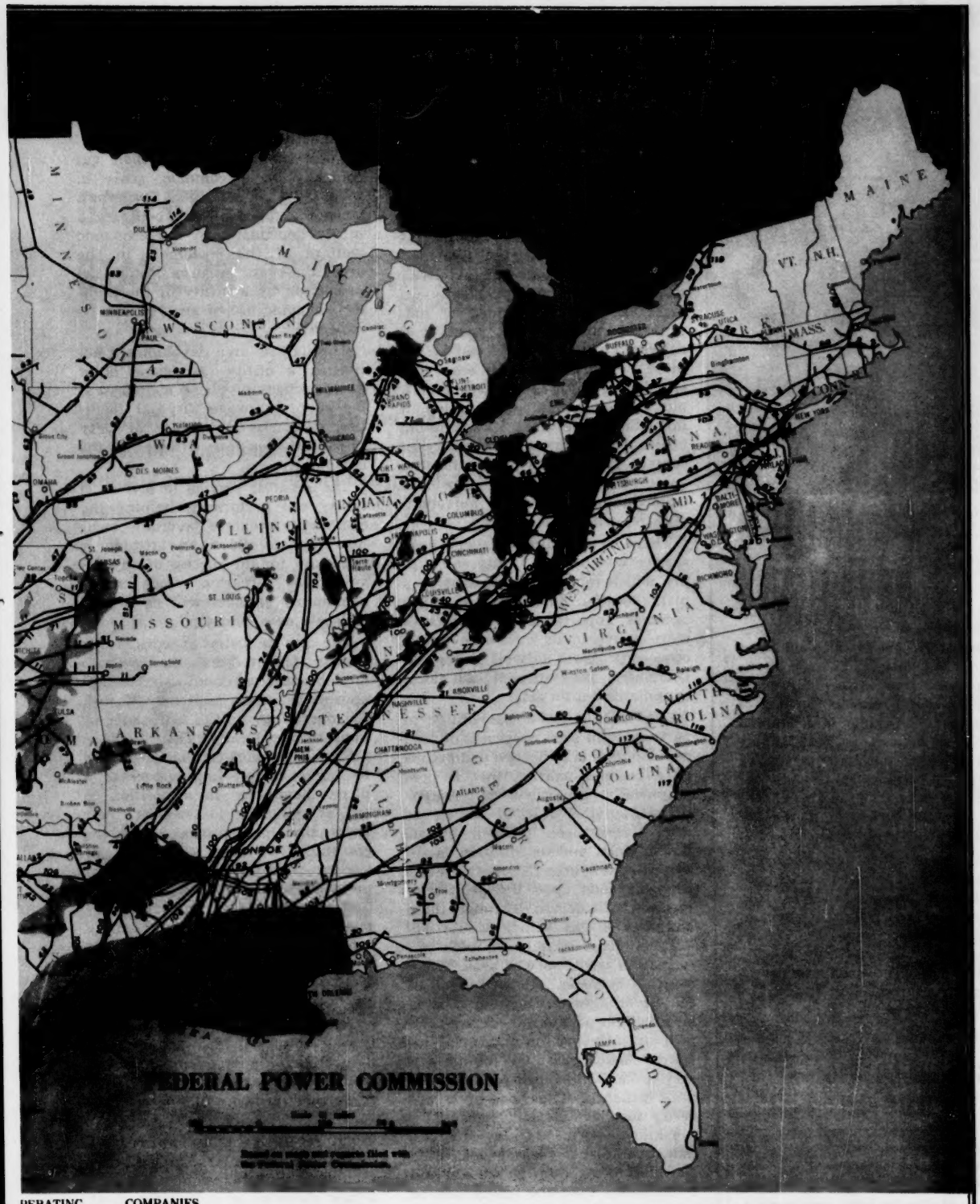
GAS FIELDS

Major source of natural gas supply.

Generalized areas of natural gas supply.

INDEX OF C

1 Alabama-Tennessee Natural Gas Co.
2 Algonquin Gas Transmission Co.
3 American Louisiana Pipe Line Co.
4 Arkansas-Louisiana Gas Co.
5 Arkansas-Missouri Power Co.
6 Associated Natural Gas Co.
7 Atlantic Seaboard Corp.
8 Carolina Natural Gas Corp.
9 Chicago District Pipeline Co.
10 Cincinnati Gas & Electric Co., The
11 Cities Service Gas Co.
12 Coastal Transmission Corp.
13 Colorado Interstate Gas Co.
14 Colorado-Wyoming Gas Co.
15 Columbia Gulf Transmission Co.
16 Commonwealth Natural Gas Corp.
17 Consolidated Gas Utilities Corp.
18 Cumberland & Allegheny Gas Co.
20 East Ohio Gas Co., The
21 East Tennessee Natural Gas Co.
22 Eastern Shore Natural Gas Co.
23 El Paso Natural Gas Co.
24 Equitable Gas Co.
26 Fort Smith Gas Corp.
27 Home Gas Company
28 Hope Natural Gas Co.
29 Houston Pipeline Co.
30 Houston Texas Gas & Oil Corp.
31 Illinois Power Co.
33 Indiana Gas & Water Co., The
35 Iowa-Illinois Gas & Electric Co.
36 Iroquois Gas Corp.
37 Kansas-Colorado Utilities Co.
38 Kansas-Nebraska Natural Gas Co., Inc.
39 Kansas Power & Light Co.
40 Kentucky Gas Transmission Corp.
41 Lake Shore Pipe Line Co.
42 Lone Star Gas Co.
43 Louisville Gas & Electric Co.
44 Manufacturers Light & Heat Co., The
45 Michigan Consolidated Gas Co.
46 Michigan Gas Storage Co.
47 Michigan Wisconsin Pipe Line Co.
48 MidSouth Gas Co.
49 Midwestern Gas Transmission Corp.
50 Mississippi River Fuel Corp.
51 Missouri Public Service Co.
52 Montana Dakota Utilities Co.
53 Montana Power Co.
54 Mountain Fuel Supply Co.
55 Natural Gas Pipeline Co., of America
56 Nevada Natural Gas Pipe Line Co.
57 New Jersey Natural Gas Co.
58 New York State Natural Gas Corp.
59 Niagara Mohawk Power Corp.
60 North Central Gas Co.
61 Northern Illinois Gas Co.
62 Northern Indiana Public Service Co.
63 Northern Natural Gas Co.
64 Northern Pipe Line Co.



PERATING COMPANIES

65 Northern Utilities Co.
66 Ohio Fuel Gas Co., The
67 Oklahoma Natural Gas Co.
68 Olin Gas Transmission Corp.
69 Pacific Gas & Electric Co.
70 Pacific Lighting Gas Supply Co.
71 Panhandle Eastern Pipe Line Co.
72 Penn-York Natural Gas Co.
73 Pennsylvania Gas Co.
74 Peoples Gulf Coast Natural Gas Pipeline Co.
75 Peoples Natural Gas Co., The
76 Permian Basin Pipeline Co.
77 Petroleum Exploration, Inc.
78 Pioneer Gathering System, Inc.
79 Pioneer Natural Gas Co.
80 Public Service Co., of N. C., Inc.
81 Public Service Corp., of Texas
82 Roanoke Pipe Line Co.
83 San Diego Gas & Electric Co.
84 Shenandoah Gas Co.
85 South Carolina Natural Gas Co.
86 South Georgia Natural Gas Co.
87 South Jersey Gas Company
88 Southeast Alabama Gas District
89 Southern California Gas Co.
90 Southern Counties Gas Co., of Calif.
91 Southern Gas Lines, Inc.
92 Southern Natural Gas Co.
93 Southern Union Gas Co.
94 Southwest Natural Gas Co.
95 Southwestern Public Service Co.
96 Southwestern Virginia Gas Co.
97 Standard Pacific Gas Lines, Inc.
98 Tennessee Gas Transmission Co.
99 Texas Eastern Transmission Corp.
100 Texas Gas Transmission Corp.
102 Transcontinental Gas Pipe Line Corp.
104 Trunkline Gas Co.
105 United Fuel Gas Co.
106 United Gas Pipe Line Co.
107 United Natural Gas Co.
108 Upham Gas Company
109 Washington Gas Light Co.
110 West Texas Utilities Co.
113 Zenith Gas System, Inc.
114 Iron Ranges Natural Gas Co.
115 Pacific Gas Transmission Co.
116 Transwestern Pipeline Co.
117 Carolina Pipeline Co.
118 North Carolina Natural Gas Corp.
119 St. Lawrence Gas Co., Inc.

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Title.....
Firm.....
Address.....
City..... State.....

(Continued from page 76)

dust. It responds instantly to thermostatic control. Its "controllability," with regard to both temperature and combustible atmosphere, make it highly desirable in many metallurgical, ceramic heating and other processing operations. Some heat treating processes call for the fuel to be only partially burned. For instance, some metal treatments require non-oxidized surfaces. The partial burning of natural gas can meet this need. It is delivered ready-to-burn, can be ignited with exceptional ease and speed, and requires no large investment in equipment. On ignition, it immediately develops its maximum heating capacity and its quality of content gives it a constant heating value. Finally, it is usually free from sulphur and other objectionable impurities.

There is an additional very good service which a gas utility can supply which makes it important as a plant location influence. A utility assumes importance as it becomes more active in its own area development program as well as the development programs of the local communities it serves.

One motive for a gas utility to participate in such programs of area development is to deepen and broaden a regional market that is geographically prescribed by regulation. Once the bulk of a utilities market has been reached by its transmission and distribution facilities, further growth of the company depends upon the growth of the region it serves. Through these activities a gas utility would acquire a great deal of valuable information on its service area. When a utility becomes informed of all of the advantages of its area, it is in an excellent position to exert a good deal of influence on industrial location. Also, by a study of its own service lines, the utility can determine which of its service areas are ready for development. Because of the knowledge of its service areas, industrial plants seeking relocation can look to a gas utility for aid and information. And the utility can be impartial because it is not in competition with the relocating plant.

Very often local communities look to outside agencies for leadership and technical assistance in their development program without realizing that the local gas utility is able to offer a good deal of expert aid as a result of its area development activities.

Local communities and their gas company have common goals in their area development programs since the financial well-being of a utility depends upon the economic welfare of the customers in the area it serves. Because of this the promotion by a utility of the highest economic use of an area can be expected.

Through its area development activities, a utility can shape other location factors. These include water supply, sewage disposal facilities, industrial sites, and the very important business climate of the community.

The greatest service to a town a utility can perform is helping the community create a favorable business climate. Such an attitude is necessary for the success of any development program since many community services will be needed to locate new industry.

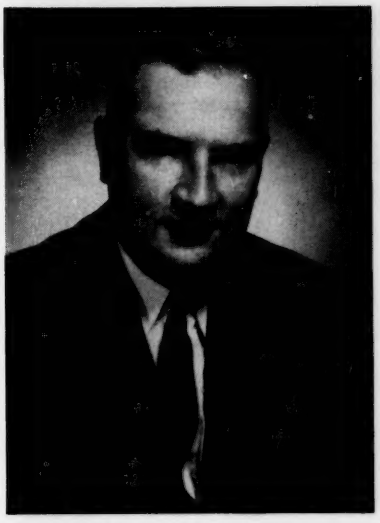
The gas industry is considering a plan for studying the methods used by successful industrial development programs so it may furnish the operating utilities with suggestions to use locally. This study so far indicates most communities need to make major improvements to place themselves in a position to ask an industry to consider their areas. Under the proposed plan the gas utility will use its position of leadership in the town to point out the need for a survey of the area to find its advantages and disadvantages as an industrial center. Many concerns are in business of making these surveys and all must rely on local people and organizations for the basic information.

Today a third of all the nation's energy requirements come from natural gas. Pipeline companies and utilities are expanding to better serve their growing number of customers.

Natural gas, as a plant location factor, becomes increasingly important to an industry requiring gas as a raw material or as a mechanical energy requirement. The industry should look for locations where the local utility can provide continuity of service and has embarked upon a constructive area development program.

GAS UTILITIES HAVE MAJOR STAKE IN AREA GROWTH

A veteran utilities engineer makes the point here that gas utilities' management can and should take the initiative in helping communities become more attractive to industry and in assisting industry in plant location problems.



J. H. Mikula is industrial development and utilities engineer for Michigan Wisconsin Pipe Line Company and has many years of experience in the gas utilities field. Among the organizations in which he is active are the American Industrial Development Council and American Gas Association.

By J. H. Mikula

Those of us in industrial engineering are charged with numerous duties and responsibilities by our managements and probably the most important of these is the ever increasing sale of natural gas to industry. The development of the areas which we serve can then provide a very valuable assist to the sale of additional industrial gas to existing and expanding industry and also to the sale of natural gas to new industry.

Conversely, then, the lack of area development can prove a very real handicap to us in the discharge of probably our most important duty. In this fast moving era of rapid progress and new developments, it seems nothing stands still, but things get better or worse. We, as industrial gas engineers, then, have a stake in area development.

Our national economic growth ties in with our increasing industrial expansion. The expenditures on new plant and equipment by U. S. business, as reported in the Survey of Current Business of the U. S. Department of Commerce for the past three years in millions of dollars have been in 1957, 36,962; 1958, 30,527; 1959, 32,543. And, 1960 is on the way to becoming another banner year at top levels. It is estimated that our national population will grow from our present 180,000,000 people to 230,000,000 people by 1975. These growths provide opportunities for us. Will industry continue to expand to the greatest extent in the areas in which we serve and will the increasing number of people live in the areas in which we serve? The communities we serve must answer this question. As a service enterprise, the gas utility is interested in the answer to this question. It supplies the requirements of the industrial, commercial and residential customers in the community and growth has a very material effect on the opportunities for load building.

The gas utility has probably the greatest stake in the answer to this question. It is one of the largest taxpayers in the community, it has one of the greatest of all of the total investments in the area. Also, its markets are limited by its franchise area. It must grow in the areas in which it serves.

Each community in the service area is important. Each one must be healthy if the maximum development is to be achieved. An overall picture of the service area may miss weaker points and overlook opportunities.

The gas utility, then, has a major stake in area development.

Area development activities appear to fit into the following three major divisions: (1) Community Improvement; (2) Existing Industry Development, and (3) New Industry Promotion.

Community growth or community development then is the first step in area development. The community must put its house in order to provide the best opportunity for existing industry to expand and for new industry to find it desirable to locate there. For a community to determine what its needs are to provide a favorable business climate for industry, it must obtain factual information as to what it has to offer to industry.

As a community improves its business climate for industry, it will realize its greatest benefit from the expansion of its existing industry. Gas utility and pipeline people already working in the field of area development, recognize that on an average 85% of the growth will come from existing industry and new industry organized in the community itself and about 15% from industry which may move into the

area from the outside.

New industry promotion follows naturally as a result of the develop- of community development and existing industry expansion. A united effort by a community which is ready for industrial growth is needed to attract new industry.

There can be only one winner when an industry locates a plant in a new area. The industry scouts a number of communities and makes its selection on a cold factual basis as to which location gives it the greatest overall advantages in fulfilling requirements. Thus, the community must sell itself to the industry. How does the community prepare for this important selling operation?

The community must have a good selling organization and the organization will vary with different communities. It may be the Chamber of Commerce, an industrial development corporation or some other group.

Whose job in the gas utility is area development or community growth? Is it top management? Is it the Sales Department? Or, is it another job for the industrial gas engineer?

It is the job of the entire gas company because it has an important effect on the growth of the utility business. The gas utility business is our business; yes, the business of all of us in the gas company, no matter what particular position any of us holds. Each job requires varying talents and abilities, but all are valuable and important only to the degree that we are able to sell our service, gas service. The future of the company and the future of our own jobs are tied in with our ability to sell the consumer.

The key organizations such as chamber of commerce, development corporations, service clubs are the groups to analyze a community's needs and work to fulfilling them. The gas utility management and its people, by taking the initiative, can help to get the job done.

The data on the community must be summarized and put into convenient concise form. Another opportunity for leadership. The Wisconsin Power and Light Company has prepared data sheets on the cities and towns in its service area. These excellent summaries provide the factual information industry is looking for when considering expansion or new locations. This utility has also prepared a series of letters containing factual information on the major items of interest to industries in considering plant locations.

The series covered such items as labor data, water data, transportation, markets, education, government, taxation, building sites, electricity and, of course, natural gas. This series of 15 letters was mailed over a period of 18 months to 352 out of state industrial concerns and 55 Wisconsin industries. The series was then bound together as a booklet entitled, "Potential for Profit Available to Industry in Wisconsin" and sent to these industries. This is effective direct mail material and brings prospects.

The Wisconsin Public Service Corporation has prepared a sixteen-page booklet "Wonderful Northeastern Wisconsin" giving important facts for industry. It is being mailed to 10,000 corporation executives and bank officers throughout the United States. Another example of a forceful piece of direct mail advertising.

The selling job is a job for the industrial team — the people who know the down-to-earth facts on utilization, facilities, rates and other specifics. A complete list of well-informed people in the fields of natural gas, electricity, water, transportation, labor supply, education, recreation, finance, statistical data, etc. makes it easy to get the right men to industry at the right time. The Industrial Sales Manager and the Industrial Gas Engineers are the men in the gas utility who are ready for these calls.

The state Industrial Development Commissions are aggressively promoting new industry. In cooperating with them, the communities and the gas utilities make up an even greater team in the development of the industrial climate and business environment for development.

The American Gas Association, recognizing the importance of area development, has a task force working on the development of material which will contain suggestions and methods for use by the industry in area development programs.

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This Company has taken an effective part in the formation and implementation of the Evansville Industrial Foundation, organized to purchase sites and provide them with gas and other necessary service facilities before sale, at cost, to diversified industries.

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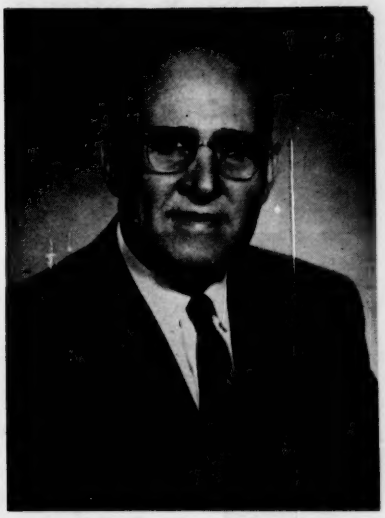
HIGH INCREASE SEEN IN NATURAL GAS USE

The over-all growth picture for the gas utilities industry, plans for future construction, as well as for research and development, and what you may expect in the way of gas supplies to fill your needs, are presented here by the president of AGA.



President and director of the Nashville Gas Company, Nashville, Tennessee, Wister H. Ligon is current president of the American Gas Association. In addition to his national gas industry activities, he is also a past president of the Southern Gas Association and a member of its executive and nominating committees.

By Wister H. Ligon

We expect that gross revenues of the gas utility and pipeline industry will advance from 1959's level of $5 billion to nearly $11 billion in 1969. By this I mean revenues from the sale of gas to **ultimate** customers, excluding receipts from gas sold for resale. We expect to serve 11 million more customers than the 32.1 million served last year. We estimate that sales of gas will nearly double in the Sixties, rising from 88 billion therms to at least 153 billion therms.

Obviously we cannot and do not expect to deliver more gas to more customers without substantial additions to our gas transmission, distribution and storage facilities. Many of our systems already are operating at full capacity, and customer waiting lists — especially heating customers — may still be found in some of our companies.

We estimate that we will add about a third of a million miles of pipe to the national gas network during the Sixties, increasing total mileage from the present figure of 596,000 to 878,000 by 1970.

Expenditures for the expansion and replacement of facilities now are expected to total $28.5 billion during the next 10 years, and the industry's gross investment in utility plant will climb from the present $20 billion to more than $45 billion.

We also are confident that the net income of the gas industry will keep pace with our physical and customer growth, although no specific projections relating to net income have been developed.

If I may state the obvious, the financial community is especially cognizant of the fact that research is one key that is essential to industrial progress; the progress of an industry will be paced by the tempo and results of research activity.

Recognizing this basic fact of modern business life, the American Gas Association has taken the first steps toward increasing the scope and tempo of gas research. Last year, we commissioned the Battelle Memorial Institute to examine our industry's research needs and activities, and to develop recommendations for long-range research programs.

In line with Battelle's recommendations, A.G.A. spearheaded the movement toward higher levels of research, increasing its own cooperative research budget by about 40 percent. This year, we are spending approximately $2.5 million for Association-conducted research and development projects, compared with $1.8 million in 1959.

The announced goal is to triple the industry's research activities within the next five years. In so doing, we will step up our efforts toward development of new and better equipment with which to improve our competitive position, new and improved techniques which will result in more efficient gas system operations, and new methods for producing synthetic gas.

Now let's look into the problem of regulation.

All of us, in all branches of the gas industry, are aware of the urgent need for methods of accelerating the processing of rate and certificate applications at both the Federal and state levels. Not only are we aware of this need, but so also is the National Association of Railroad and Utilities Commissioners. N.A.R.U.C. has set up a committee to look into this particular problem in relation to Federal Power Commission hearings.

The problem is especially serious with regard to natural gas producer regulation at the Federal level.

Virtually all gas industry executives now realize the need to provide gas producers with sales reve-

nues high enough to encourage as well as permit accelerated gas exploration. We know that future demand for gas will rise rapidly, and ways of insuring adequate exploration and location of new gas supplies must be found.

We are equally aware, however, of the need to keep wellhead prices at levels which will enable distribution companies to continue competing with other energy industries. Somewhere between these somewhat conflicting viewpoints — providing more money to the producers and maintaining our competitive position in the market-place — a fine line, fair to all, must be drawn.

Informal discussions have been going on for some time between representatives of gas producers, pipeliners and distributors — men acting as **individuals** rather than as **official delegates** from trade associations — to develop better understanding of each others' problems and requirements. We are most hopeful that these cordial and valuable discussions will culminate in recommendations and procedures that will permit all branches of the gas industry to co-exist harmoniously and, of course, profitably.

Proved recoverable resources of natural gas showed a substantial gain last year. Despite record production, these resources totaled 262.6 trillion cubic feet at the end of 1959.

There are varying estimates of ultimate reserves made by a number of qualified individuals and agencies. These estimates generally range from 1200 to 1700 trillion cubic feet, and they include only the resources believed present in the United States.

In addition to our **domestic** natural gas reserves, substantial amounts of gas are being discovered in both Canada and Mexico. Ultimate reserves in Canada alone have been estimated at 300 trillion cubic feet by the British American Oil Company, and we feel this may prove to be quite a conservative estimate.

The effective development of those producing areas requires market outlets for gas which becomes available, and certainly the United States must provide a large portion of these markets. In fact, the United States soon will be receiving an additional one billion cubic feet of Canadian gas per day as the result of Canada's recent approval of four export applications.

But even this does not represent the whole picture of gas supply. Our industry **also** is conducting a vigorous research program directed toward the development of processes for producing **synthetic** natural gas, or an equivalent gas, from the oil shales, low-grade coals and other abundant natural resources.

Significant progress is being made in this area. And while our processes are not yet competitive with natural gas production, I do not doubt that they **will** be by the time we need synthetic gas to supplement the natural product.

Considering all of these sources of gaseous energy, I do not feel there is any foreseeable supply limitation which would affect the gas industry's ability to expand and provide additional energy for our nation.

ONE-STOP SERVICE
for all the facts regarding
the advantages of locating
your plant
IN ARIZONA
Arizona Public Service serves natural gas and electricity to over 200 communities throughout 40,000 square miles of the state.
Our Area Development Department knows ARIZONA and its BUSINESS CLIMATE.
We will be pleased to serve YOU!
ARIZONA PUBLIC SERVICE COMPANY
SERVING GROWING ARIZONA— AMERICA AT ITS BEST
A.V.K. Babcock, MANAGER
AREA DEVELOPMENT DEPARTMENT
P. O. BOX 2591
PHOENIX, ARIZONA

YOU CAN GET SITE SELECTION HELP FROM THESE GAS FIRMS

Following is a list of gas utility companies which have active industrial development departments from which you may get help on plant location problems.

Those companies for which complete information is given were the ones which answered a special questionnaire sent out by I.D. The others, marked by an asterisk (*), are from a partial list supplied by the American Gas Association, the industry organization with headquarters in New York City.

CODE CLASSIFICATION DATA

(A) Assisting communities in organizing development programs at local levels.
(B) Promoting community improvement programs.
(C) Conducting research on assets and resources of the area.
(D) Advertising area and soliciting industrial inquiries.
(E) Responding to inquiries and assisting prospects in actual site studies.
(F) Assisting in obtaining sources of finance for plant location.
(G) Making or having made community audits or surveys, keeping master file.
(H) Conducting home town improvement contest, main street modernization, etc.
(I) Advertising in national periodicals.
(J) Preparing and mailing brochures, handling direct mail programs.
(K) Setting up or helping set up planning and zoning programs.
(L) Producing or distributing motion pictures for educational promotion use.
(M) Purchasing research studies or retaining consultants to study area potential.
(N) Holding workshops, orientation sessions at local level.
(O) Helping set up local foundations or develop corporations.
(P) Participating in financing organizations.
(Q) Owning or planning ownership of industrial sites.

ALABAMA

Alabama Gas Corporation, 1918 First Avenue, North, Birmingham 3, Alabama. This privately owned utility distributes over 55 billion cubic feet per year to consumers throughout 49 communities in North Central Alabama. It has 230,000 residential, 21,000 commercial and 77 industrial customers.

ARIZONA

Arizona Public Service Company, 501 South 3rd Avenue, Phoenix, Arizona. A. V. K. Babcock, Manager, Area Development Department. Privately owned, it distributes 22 billion cubic feet per year to consumers throughout 40,000 square miles to over 200 communities in 10 counties. It has 166,584 residential, 15,705 commercial and 633 industrial customers.
A, B, C, D, E, G, H, J, K, L, M, N, O.

Tucson Gas, Electric Light and Power Company, 35 West Pennington, Tucson, Arizona. Privately owned, the company distributes 10 billion cubic feet per year to consumers in the market area of Tucson. It has 58,343 residential, 5,794 commercial, and 21 industrial customers.
A, B, D, E, J, K, L, M, O.

ARKANSAS

Arkansas-Missouri Power Company, (Associated Natural Gas Company — Subsidiary), Blytheville, Arkansas. John Watson, Administrative Assistant. This privately owned firm distributes 7.2 billion cubic feet per year to consumers to Northeastern Arkansas and Southeastern Missouri. It has 20,993 residential, 3398 commercial and 316 industrial customers.
A, B, D, E, F, G, J, L, M, O.

Arkansas Western Gas Company, 28 East Center Street, Fayetteville, Arkansas. Leonard B. Kendall, Director of Industrial Development. This privately owned utility distributes 7.4 billion cubic feet per year to consumers. It has 26,855 residential, 6146 commercial and 41 industrial customers.
A, B, C, D, E, F, G, H, J, N, O, P.

CALIFORNIA

Long Beach Gas Department, 215 W. Broadway, Long Beach 2, California. This publicly owned utility distributes 80 million cubic feet per day to the City of Long Beach. It has 106,800 residential, 955 commercial and 68 industrial customers.

Pacific Gas and Electric Company, 245 Market Street, San Francisco 6, California. John S. Walsh, Manager, Area Development. This privately owned company distributes 336 billion cubic feet per year to consumers to Northern and Central California. It has 1.5 million residential, 119,000 commercial and 3,186 industrial customers.
A, B, C, D, E, G, I, J, L, N, O.

San Diego Gas & Electric Company *
861 Sixth Avenue
San Diego 12, California

Southern Counties Gas Company of California, 720 West Eighth Street, Los Angeles 17, California. Robert K. Von Der Lohe, Manager, Commercial and Industrial Sales. This privately owned utility transmits 42 billion cubic feet to other utilities

[Editor's note: It takes between 90 and 100 cubic feet of natural gas to provide one therm—a unit of heat.]

No-where But In Northern Illinois

Nowhere will you find so many diversified industries—food, oil refining, chemicals, glass, clay, primary metals, machinery, metal fabricating . . .

Nowhere will you find such superb transportation—rail, highway, air, and now access to the seven seas — direct by ship.

And nowhere will you find greater intra-industrial cooperation.

We supply gas to 3700 industrial plants and their more than 290 home communities. To keep pace with the growth and development of northern Illinois, we expect to invest an estimated $180,000,000 in new and improved gas facilities during the 5-year period ending with 1964.

If you would like to locate your plant in this area where 3,700 other industries are growing, we will be glad to assist you . . . without obligation of course. Write us in strictest confidence if you wish. Address your inquiry to:

Harold J. Roth, Mgr., Industrial Development, Northern Illinois Gas Co., 615 Eastern Avenue, Bellwood, Illinois.

NORTHERN ILLINOIS Gas COMPANY

PROMPT . . . COURTEOUS . . . DEPENDABLE SERVICE

and distributes 119 billion cubic feet per year to consumers in Orange, Ventura, and Santa Barbara Counties, and portions of Los Angeles and San Bernardino Counties. It has 2,131 industrial and 714,343 commercial and residential customers.
E.

COLORADO

Public Service Company of Colorado, 900 Fifteenth Street, Denver, Colorado. Gordon Parker, Director of Area Development. This privately owned utility distributes 111 billion cubic feet per year to consumers in Denver, Boulder, Fort Collins, Longmont, Loveland, Grand Junction and Brush, Colorado. It has 239,664 residential, 31,409 commercial and 256 industrial customers.
A, B, E, G, K, L, N.

CONNECTICUT

Connecticut Light & Power Company *
Robert P. Lee, Manager, Area Development
Selden Street
Berlin, Connecticut
Hartford Electric Light Company, Cumberland Road, Wethersfield, Connecticut. Edward R. Cole, Area Development Director. This privately owned utility distributes 2.8 billion cubic feet per year to consumers around New London, Stamford and Torrington. It has 30,146 residential, 2,683 commercial and 226 industrial customers.
A, B, C, D, E, F, H, I, J, K, L, M, N, O, P.
The Housatonic Public Service Company, 33 Elizabeth Street, Derby, Connecticut. Stuart T. Hotchkiss, Development Engineer. This privately owned utility has 20,983 residential, 1,460 commercial and 198 industrial customers in eight cities and towns in Southwestern Connecticut.
A, F, D, E, F, K, O, P.

DELAWARE

Delaware Power and Light Company, 600 Market Street, Wilmington, Delaware. W. A. F. Pyle, Manager of Power Sales. This privately owned utility distributes 5.7 billion cubic feet to consumers per year in Wilmington and suburbs. It has 55,759 residential, 2,347 commercial and 43 industrial customers.
A, D, E, F, G, I, J, O, P.

DISTRICT OF COLUMBIA

Washington Gas Light Company, 1100 H Street, N. W., Washington 5, D. C. John H. W. Roper, Area Development Consultant. This privately owned utility distributes 42 billion cubic feet per year to consumers in District of Columbia and nearby Virginia and Maryland. It has 357,820 residential, and 31,578 commercial and industrial customers.

FLORIDA

Florida Public Utilities Company *
338 Datura Street
West Palm Beach, Florida
Houston Corporation, P. O. Box 10400, St. Petersburg, Florida. H. H. Phipps, Manager, Commercial and Industrial Sales. This privately owned utility has 50,000 residential, 5,000 commercial and 200 industrial customers throughout Jacksonville, Daytona Beach, Orlando, Lakeland, Triangle and Miami.
A, B, D, E, F, I, J, K, L, M, O.

GEORGIA

Atlanta Gas Light Company, 243 Peachtree Street, P. O. Box 4569, Atlanta 2, Georgia. Orbie Bostick, Chief Industrial Engineer. This privately owned utility distributes 1.2 billion therms per year to consumers in Georgia. It has 320,000 residential, 30,000 commercial and 2,500 industrial customers.
A, B, D, E, G, J.

ILLINOIS

Central Illinois Electric and Gas Company, 303 North Main Street, Rockford, Illinois. Sheldon A. Coxhead, Sales Manager. This privately owned utility has 51,090 residential, 2,301 commercial and 220 industrial customers throughout the Rockford-Loves Park area and the City of Freeport, Illinois.
A, B, C, D, E, F, G, H, J, L, N.
Central Illinois Light Company, 300 Liberty Street, Peoria, Illinois. Mark B. Townsend, Area Development Director. This privately owned utility distributes 135 million cubic feet per day to consumers in 84 communities. It has 95,469 residential, 7,935 commercial and 108 industrial customers.
Central Illinois Public Service Company* 607 E. Adams Street
Springfield, Illinois.
Illinois Power Company, 500 South 27th Street, Decatur, Illinois. C. W. McCaulla, Industrial Development Engineer. This privately owned utility distributes 187 million cubic feet per day to consumers in sections of northern, central and southern Illinois. It has 172,597 residential, 18,291 commercial and 196 industrial customers.
C, D, E, G, L, M, P.
Northern Illinois Gas Company, 615 Eastern Avenue, Bellwood, Illinois. Harold J. Roth, Manager, Industrial Development. This privately owned utility transmits 2.4 million therms to other utilities and distributes 1.5 billion therms to consumers in most of northern Illinois. It has 640,902 residential, 27,879 commercial, and 3,840 Industrial customers.
A, D, E, F.
The Peoples Gas Light and Coke Company, 122 South Michigan Avenue, Chicago, Illinois. Jack H. Cornelius, Manager of Community Relations. This privately owned utility distributes 1.6 billion therms per year to Chicago consumers, and has 935,748 residential, 40,196 commercial and 7,355 industrial customers.
B.

100,041,000,000

good reasons to think of Michigan

If your business is expanding, available sites in progressive Michigan communities may be ideal for your needs because:

1. **There are 1,000,000 skilled and semi-skilled workers in Michigan.**
2. **There are 40 million consumers within one night's truck haul of most Michigan plants.**
3. **There are 100 billion cubic feet of natural gas, assuring low cost heating and processing.**

Michigan is a place where industry rolls up its sleeves and produces . . . in nearly every vital manufacturing operation. There are men to do the job. There are materials and facilities unmatched by other areas. There are close-by consumer markets for almost any kind of product. And, there is ready transportation, now at peak efficiency because of the St. Lawrence Seaway.

We invite you to consult our Industry Development Division, Detroit 26, Michigan, for confidential information on plant sites.

So much more for so much less—GAS *naturally*

MICHIGAN CONSOLIDATED GAS COMPANY

GAS UTILITIES

INDIANA

Citizens Gas and Coke Utility, 2020 North Meridian Street, Indianapolis, Indiana. E. G. Peabody, Executive Engineer. This publicly owned utility distributes 19 billion cubic feet to consumers in Marion County. It has 151,262 residential, 6,675 commercial and 344 industrial customers.

Indiana Gas & Water Company, Incorporated, 1630 North Meridian Street, Indianapolis, Indiana. Fred W. Dopke, First Vice President. This privately owned utility distributes 30 billion cubic feet per year to consumers in central and southern Indiana. It has 97,968 residential, 11,379 commercial, and 229 industrial customers.
A, B, E, N, P.

Southern Indiana Gas and Electric Company, 20-24 N. W. Fourth Street, Evansville, 3, Indiana. A. B. Brown, President. This privately owned utility distributes 8.6 billion cubic feet per year to consumers in and around Evansville, Mt. Vernon, and Newburgh, Indiana. It has 40,510 residential, 3,826 commercial, and 150 industrial customers.
A, B, C, D, E, F, G, I, J, K, L, N, O.

IOWA

Iowa Electric Light and Power Company, Cedar Rapids, Iowa. L. A. Talbott, Administrative Assistant to Vice President of Commercial and Sales Department. This privately owned utility distributes 27 billion cubic feet per year to Iowa, Nebraska, Colorado and Minnesota. It has 57,600 residential, 7,103 commercial, and 137 industrial customers.

Interstate Power Company*
L. L. Peterson, Manager, Area Development
1000 Main Street
Dubuque, Iowa

Iowa-Illinois Gas and Electric Company, 206 East Second Street, Davenport, Iowa. Lewis H. Day, Director, Area Development. This privately owned utility distributes 395 million therms per year to consumers in Rock Island and Moline, Illinois and Davenport, Iowa City, Fort Dodge, Cedar Rapids and Ottumwa, Iowa. It has 121,687 residential, 10,672 commercial and 218 industrial customers.
A, B, C, D, E, F, G, I, J, K, O, Q.

Iowa Power and Light Company, 823 Walnut, Des Moines, Iowa. C. E. Worlan, Manager, Area Development Division. This privately owned utility distributes 27 billion cubic feet of gas annually to consumers in 21 counties of central and southwestern Iowa. It has 81,400 residential, 8,600 commercial and 360 industrial customers.
A, B, D, E, F, G, I, J, K, L, M, O, P.

Iowa Public Service Company, 502 Sixth Street, Sioux City, Iowa. Scott Phelps, Special Representative. This private utility distributes 221 million therms to consumers of southeastern South Dakota, northeastern Nebraska, and Northern Iowa. It has 7,341 residential, 11,062 commercial and 319 industrial customers.
A, B, E, F, G, L, N, O, P.

Iowa Southern Utilities Company*
V. C. Price, Manager, Area Development
317 North 13th Street
Centerville, Iowa.

KANSAS

Kansas Gas & Electric Company
Georgie E. Billings, Director, Industrial Development Services.
201 N. Market, Box 208
Wichita 1, Kansas.

KENTUCKY

Louisville Gas and Electric Company, 311 W. Chestnut Street, Louisville, Kentucky. H. Curtis Craig. This privately owned utility distributes 38 billion cubic feet per year to consumers in the Louisville Area, and transmits 305 million cubic feet per year to other utilities. It has 151,800 residential, 12,792 commercial and 166 industrial customers.
A, B, C, D, E, M, O, P.

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Based upon your firm's requirements, special investigations will be conducted without obligation by Northern's development technicians to answer your location questions. A full scope of services is offered.

Plant Site Evaluations

Everything from business environment to site selection, tailored to meet your needs.

Economic Investigations

Providing dependable information in problem areas such as manpower, resources, community appraisals and similar location considerations.

Sources of Supply

Through Northern's Facilities Register, a unique electronic index of the area's production capabilities.

Market Studies

Competitive situations, consumer characteristics, together with projections of the market's future.

Financing Sources

An intimate knowledge about community financing groups, as well as private financial institutions in this area.

To use these services and obtain current mailings, write Randall Klemme, vice president, Northern Natural Gas Company, Omaha, Nebraska.

SERVING THE NORTHERN PLAINS

NORTHERN NATURAL GAS COMPANY

GENERAL OFFICES: OMAHA, NEBRASKA

Texas Gas Transmission Corporation, P. O. Box 577, Owensboro, Kentucky. Glover Cary, Manager of Industrial Development. This privately owned utility transmits about 379 billion cubic feet annually of which 88 per cent goes to other utilities and 12 per cent direct to 14 industrial customers.
A, B, C, D, E, F, G, H, I, J, K, N, O.

Western Kentucky Gas Company, 608 Frederica Street, Owensboro, Kentucky. W. H. Neal, Director, Industrial Development Department. This privately owned utility distributes 16 billion cubic feet per year to consumers in central and western Kentucky. It has 62,593 residential, 7,867 commercial and 138 industrial cumstomers.
A, B, D, E, G, H, J, N.

LOUISIANA

Central Louisiana Electric Company *
528 Monroe Street
Alexandria, Louisiana

New Orleans Public Service Incorporated, 317 Baronne Street, New Orleans, Louisiana. J. F. Morton, Industrial Sales Manager. This privately owned utility distributes 28 billion cubic feet per year to the City of New Orleans. It has 157,954 residential, 12,092 commercial, and 616 industrial customers.
B, C, D, E, F, G, I, J, M.

United Gas Corporation and United Gas Pipe Line Company. P.O. Box 1407, Shreveport, Louisiana. V. S. Brennan, Director of Sales and Rates. This privately owned utility transmits 598 billion cubic feet to other utilities and distributes 1.4 trillion cubic feet per year to consumers in Gulf South (Texas, Louisiana, Mississippi, Alabama and Florida). It has 515,702 residential, 60,100 commercial and 2,361 industrial customers.
C, D, E, I, J, L, M.

MARYLAND

Baltimore Gas and Electric Company, Lexington Bldg., Lexington & Liberty Streets, Baltimore 3, Maryland. Robert J. George, Industrial Development Engineer. This privately owned utility distributes 38 billion cubic feet to consumers annually in Mid-Maryland. It has 362,255 residential, 25,445 commercial and 1,065 industrial customers.
D, E, F, I, J, K, O.

MASSACHUSETTS

Berkshire Gas Company, P. O .Box 1143, Pittsfield, Massachusetts. This privately owned utility distributes 2.1 billion cubic feet per year to consumers in western Massachusetts. It has 23,087 residential, 1,547 commercial and 150 industrial customers.
A, B, C, D, E, F, G, I, K, M, N, O, Q.

Haverhill Gas Company, 63 Merrimack Street, Haverhill, Massachusetts. H. L. Hall, General Sales Manager. This privately owned utility distributes 1.8 billion cubic feet per year to consumers to 17 cities and towns in northeastern Massachusetts. It has 23,190 residential, 1,296 commercial and 390 industrial customers.
A, B, K, O.

New England Gas & Electric System, 727 Massachusetts Avenue, Cambridge, Massachusetts. M. P. Griffith, Assistant Vice President. This privately owned utility distributes 15 billion cubic feet per year to consumers in the Worcester, Cambridge, Plymouth and New Bedford areas. It has 161,000 residential, 9,000 commercial and 1,000 industrial customers.
A, B, E, F, G, H, J, K, L, N, O, P.

MICHIGAN

Battle Creek Gas Company, 26 E. Michigan Avenue, Battle Creek, Michigan. D. M. Eckman, Vice President & General Manager. This privately owned utility distributes 47 billion therms per year to consumers in the Battle Creek area. It has 19,583 residential, 1,111 commercial and 36 industrial customers.
B, E, H, K, L, O.

Consumers Power Company, 212 Michigan Avenue, West Jackson, Michigan. H. L. Brewer, Director of Area Development. This privately owned utility distributes 6.2 million cubic feet per day to consumers. It has a total of 514,451 residential, commercial and industrial customers.
A, B, C, D, E, F, G, I, J, L, N, O, P.

Michigan Consolidated Gas Company, 415 Clifford Street, Detroit 26, Michigan. Robert L. Gage, Manager, Industry Development Division. This privately owned utility distributes 194 billion cubic feet per year to consumers in Michigan. It has 807,721 residential, 51,993 commercial and 3,010 industrial customers.
A, B, C, D, E, F, I, J, K, L, M, N, O, P.

Michigan Gas & Electric Company *
108 E. Michigan Avenue
Three Rivers, Michigan

MINNESOTA

Minneapolis Gas Company, 739 Marquette Avenue, Minneapolis 2, Minnesota. Bert H. Roberts, Vice President — Area Development. This privately owned untility distributes 61 billion cubic feet per year to consumers in Hennepin County. It has 203,920 residential, 11,814 commercial and 1,961 industrial customers.
A, C, D, E, G, I, K, M.

Minnesota Valley Natural Gas Company, 315 South Minnesota Avenue, St. Peter, Minnesota. R. E. Crawford, Jr., Assistant to the Vice President. This privately owned utility distributes 11 billion cubic feet to consumers annually throughout south central and central Minnesota. It has 20,864 residential, 2,464 commercial, and 134 industrial customers.
A, B, L, P.

Montana Dakota Utilities Company *
Robert Naylor, Manager of Area Development
831 Second Avenue South
Minneapolis, Minnesota.

Northern States Power Company *
Robert F. Mueller, Supervisor, Industrial Development
15 South 5th Street
Minneapolis, Minnesota.

MISSISSIPPI

The Union Gas Company, P. O. Box 4647, Jackson 6, Mississippi. J. M. Walsh, General Manager. This privately owned utility distributes 1 billion cubic feet per year to N. E., N. W., Central, and S. W. Mississippi, E. Central Arkansas, and S. W. Alabama. It has 7,509 residential, 994 commercial, 16 industrial and 117 public authority customers.

MISSOURI

Missouri Edison Company *
123½ N. Fourth Street
Louisiana, Missouri

St. Joseph Light & Power Company *
520 Francis Street
St. Joseph, Missouri

Union Electric Company *
J. Eugene Johanson, Manager, Industrial Development
315 North Twelfth Blvd.
St. Louis, Missouri

MONTANA

Montana Power Company *
40 E. Broadway
Butte, Montana

NEBRASKA

Northern Natural Gas Company, 2223 Dodge Street, Omaha, Nebraska. Randall T. Klemme, Vice President. This publicly owned utility transmits 337 billion cubic feet to other utilities and distributes 73 billion cubic feet per year to consumers in Iowa, Kansas, Minnesota, Illinois, Nebraska, South Dakota and Wisconsin. It has 897,244 residential and 88,929 commercial and industrial customers.
A, B, C, D, E, F, G, I, J, K, L, M, N, O.

NEVADA

Sierra Pacific Power Company *
220 South Virginia Street
B. E. Lowe, Manager, Area Development
Reno, Nevada

NEW JERSEY

Elizabethtown Consolidated Gas Company, 16 West Jersey Street, Elizabeth, New Jersey. Richard E. Crane, Industrial Sales Manager. This publicly owned utility distributes 8.7 billion cubic feet per year to consumers in Union and Middlesex Counties. It has 137,640 residential, 7,281 commercial and 444 industrial customers.
D, E, I, J, L, M, O.

New Jersey Natural Gas Company, 601 Bangs Avenue, Asbury Park, New Jersey. J. V. Richards, Manager of Planning & Development. This privately owned utility distributes 9.9 billion cubic feet per year to customers in Morris, Middlesex, Monmouth, Ocean and Cape May Counties. It has 110,900 residential, 6,800 commercial, and 98 industrial customers.
A, B, D, E, I, J, K, O.

Public Service Electric & Gas Company *
C. S. Cronkright, Manager, Area Development
80 Park Place
Newark, New Jersey

South Jersey Gas Company, 2001 Atlantic Avenue, Atlantic City, New Jersey. Vernon F. Stanton, Vice President. This privately owned utility annually transmits 1.1 billion cubic feet to other utilities and distributes 16 billion cubic feet to consumers in southern New Jersey. It has 74,288 residential, 7,047 commercial and 195 industrial customers.
D, E, F, J, O, P.

NEW YORK

Central Hudson Gas & Electric Corporation, Poughkeepsie, New York. Mr. Charles H. Adler, Industrial Development Director. This privately owned utility distributes 3.5 billion cubic feet per year to consumers in an area of 2,500 square miles in 8 counties between New York and Albany on both sides of the Hudson River. It has 38,000 residential, 2,700 commercial and 200 industrial customers.
A, B, C, D, E, F, G, J, K, L, O.

Consolidated Edison Company of New York, Incorporated.*
4 Irving Place
New York, New York

Niagara Mohawk Power Corporation, 300 Erie Boulevard West, Syracuse 2, New York. Richard F. Torrey, Director of Area Development. This privately owned utility transmits 794 billion cubic feet to other utilities and distributes 57 billion cubic feet per year to consumers in 21 cities, 143 towns and villages in 17 counties of Upstate New York. It has 326,277 residential, 23,423 commercial and 607 industrial customers.
A, B, C, D, E, F, G, I, J, K, L, M, O, P.

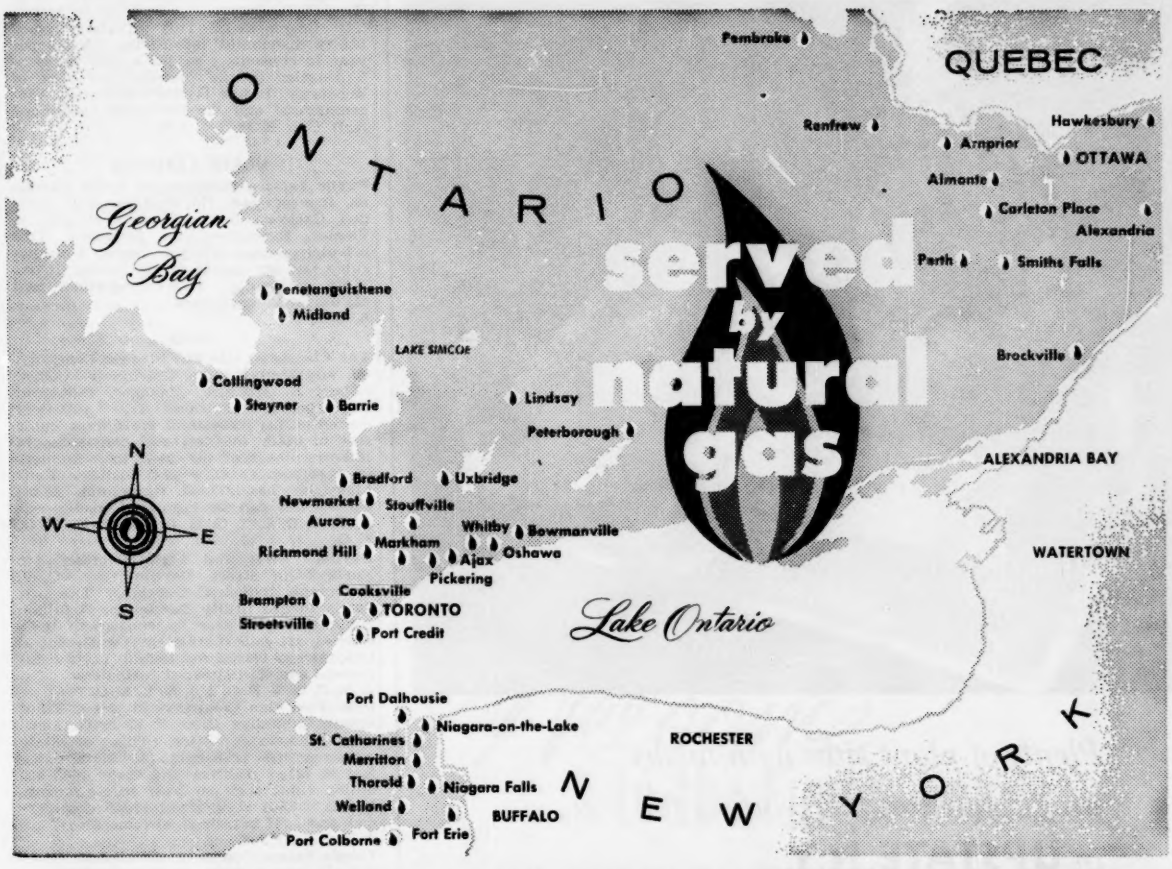
Orange & Rockland Utilities *
Harry Hansen, Manager, Area Development
10 North Broadway
Nyack, New York

Panhandle Eastern Pipe Line Company, 120 Broadway, New York 5, New York. Albert H. Hargreaves, Manager Industrial Development. This privately owned utility transmits 375 billion cubic feet to other utilities and distributes 62 billion cubic feet per year to consumers in Texas, Oklahoma, Kansas, Missouri, Illinois, Indiana, Ohio, Michigan, Louisiana, Tennessee, Mississippi, Kentucky and Ontario, Canada. It has 4 million customers in 1,500 communities.
A, D, E, F, I, J, L, Q.

New York State Electric & Gas Corporation, 62 Henry Street, Binghampton, New York. E. W. Bartley, Manager Industrial

INDUSTRIAL PLANT SITES

to meet your needs



GREATEST CHOICE OF LOCATIONS IN CANADA'S GREATEST COMMERCIAL ZONE

- **CITY . . . TOWN . . . VILLAGE . . . COUNTRY . . .** whatever size and type of community you prefer is to be found in this rich area.
- **WATER . . . RAIL . . . TRUCK . . . AIR TRANSPORTATION** are at, or near, every community.
- **SKILLED . . . SEMI-SKILLED . . . UNSKILLED LABOR** is available at fair rates. Naturally wages vary with the size and location of the community. Canadian labor is steady-going and easy to get along with: it has stability and contentment.
- **NATURAL GAS . . . ELECTRICITY . . . OIL . . . COAL** are all to hand for power and fuel at reasonable rates.
- **DRYNESS . . . DAMPNESS . . . SANDY . . . CLAY . . . ROCKY** here is your choice of climate and soil with all that implies of water and other natural resources.
- **SOPHISTICATED . . . SIMPLE . . . SPORTING . . . LEISURELY** interests, all can find expression.
- **EVERYWHERE THERE IS THE SENSE OF GROWTH** and achievement . . . of a bustling, active country "going places."

• • •

COME ALONG AND "GO PLACES" IN CANADA

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Industrial Development Division, Head Office, 19 Toronto St., Toronto 1, Ont., Canada

Consumers' Gas

your profit potential is great... UPSTATE

Plenty of plant sites with husky profit potential are waiting for you in **UPSTATE, N.Y.**

Here, in the 22,000 square miles served by Niagara Mohawk, nearly every type of industry can find the plant site admirably suited to its needs...the site from which to serve the richest market in the world...the great Northeast.

We can help in your search for a profitable site with fast, expert, confidential assistance. You can benefit from our comprehensive inventory of buildings and sites and the intimate, detailed knowledge of our district managers about the communities we serve. We'll gladly assist in specific research you need in *your* search for the ideal location.

Before you choose a plant site, learn all the advantages waiting for you in Upstate, N. Y.: a wealth of natural resources... plenty of low-cost electric power...abundant water... a solid labor force...a most attractive political and economic climate ...healthy, diversified industrial neighbors prospering here. Transportation is particularly attractive; the growing network of superhighways, the St. Lawrence Seaway, the Barge Canal and excellent rail and air service combine to provide fast, dependable access to the rich northeastern market and Canada and to the seaports of the world.

For complete information on the services we offer...and for concrete help in your search...write, wire or phone Director of Area Development, Niagara Mohawk Power Corporation, Dept. I-6, 300 Erie Blvd. West, Syracuse 2, N. Y.

NIAGARA MOHAWK

BUSINESS MANAGED • TAXPAYING

GAS UTILITIES

Development. This privately owned utility has 90,434 residential, 8,357 commercial and 328 industrial customers in 35% of Upstate New York area.
A, B, C, D, E, F, G, I, J, K, L, N, O, P.

Rochester Gas and Electric Corporation, 89 East Avenue, Rochester 4, New York. Kendall B. Castle, Jr., Director of Industrial Development. This privately owned utility distributes 185 million therms per year to consumers in 892 square miles of 5 counties in the metropolitan area of Rochester. It has 144,690 residential, 8,558 commercial and 429 industrial customers.
A, B, C, D, E, F, G, I, J, K, L.

NORTH CAROLINA

Public Service Company of North Carolina, Incorporated. 170 West Franklin Avenue, Gastonia, North Carolina. Charles E. Ziegler, Executive Vice President. This privately owned utility transmits 1 million cubic feet per day to other utilities. It has 32,676 residential, 5,105 commercial and 425 industrial customers.
A, C, E, F.

OHIO

The Cincinnati Gas and Electric Company, 4th and Main Streets, Cincinnati 1, Ohio. Robert B. McClure, Manager, Industrial Development Division. This privately owned utility transmits 3.7 billion cubic feet to other utilities, and distributes 74 billion cubic feet per year to consumers in southwestern Ohio and northern Kentucky. It has 275,754 residential, 28,286 commercial and 839 industrial customers.
A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q.

Dayton Power and Light Company, 25 North Main Street, Dayton, Ohio. C. J. Fuhrmann, Industrial Developer. This privately owned utility distributes 47 billion cubic feet per year to consumers in a 6,100-square-mile area in west-central Ohio. It has 176,362 residential, 18,412 commercial and 631 industrial customers.
A, B, C, D, E, F, G, I, J, K, L, N, O, P.

Ohio Fuel Gas Company, 99 North Front Street, Columbus, Ohio. C. C. Eeles, Manager, Industrial Sales. This privately owned utility transmits 72 billion cubic feet to other utilities, and distributes 220 billion cubic feet per year to consumers. It has 684,165 residential, 51,549 commercial, and 1,767 industrial customers.
A, B, E, G, I, J, O.

Toledo Edison Company, 420 Madison Avenue, Toledo 4, Ohio. Robert E. Johnson, Manager, Industrial Development Department. This privately owned utility distributes 754 million cubic feet to consumers per year within 2,500 square miles of northwestern Ohio. It has 3,262 residential, 379 commercial and 10 industrial customers.
A, C, D, E, F, G, I, J, L, N, O.

OKLAHOMA

Consolidated Gas Utilities, C. B. Day, Manager of Area Development, 515 North Robinson Avenue, Oklahoma City, Oklahoma.
Oklahoma Gas and Electric Company, Don Anderson, Manager of Area Development, P. O. Box 1498, Oklahoma City, Oklahoma.
Oklahoma Natural Gas Corporation, Leonard Crump, Director of Industrial Development, 624 South Boston Street, Tulsa, Oklahoma.

PENNSYLVANIA

Peoples Natural Gas Company, 2 Gateway, Pittsburgh 22, Pennsylvania. Charles L. Yost, Manager, Industrial Development. This privately owned utility distributes 93 billion cubic feet to consumers in 13 counties throughout western Pennsylvania. It has 246,265 residential, 15,037 commercial and 202 industrial customers.
C, D, E, F, J, P, Q.

Philadelphia Electric Company, 1000 Chestnut Street, Philadelphia 5, Pennsylvania.

C. W. Deeg, Manager, Area Development Department. This privately owned utility distributes 28 billion cubic feet per year to consumers in Bucks, Chester, Delaware and Montgomery counties, and a small portion of Lancaster County. It has 212,000 residential, 14,000 commercial and 350 industrial customers.
A, C, D, E, F, G, I, J, K, L, O.

United Gas Improvement Company*
1401 Arch Street
Philadelphia, Pennsylvania

RHODE ISLAND

Blackstone Valley Gas and Electric Company, 55 High Street, Pawtucket, Rhode Island. L. P. Lemieux, Industrial Development Manager. This privately owned utility transmits 11.6 million cubic feet to other utilities and distributes 3 billion cubic feet to consumers in Pawtucket, Central Falls, Woonsocket, North Smithfield, Lincoln, Cumberland, and Parts of North Providence. It has 44,442 residential, 2,618 commercial and 302 industrial customers.
A, B, C, D, E, F, G, J, K, L , O, P, Q.

Narragansett Electric Company *
15 Westminster Street
Providence, Rhode Island

Providence Gas Company *
E. G. Silven, Industrial Sales Manager
100 Weybosset Street
Providence, Rhode Island

SOUTH CAROLINA

South Carolina Electric and Gas Company, Box 390 Columbia, South Carolina. W. S. Rodgers, Manager Industrial Development Department. This privately owned utility transmits 5 million cubic feet per day to other utilities and distributes 1.2 billion cubic feet per year to consumers in 14 counties throughout southwestern South Carolina. It has 38,564 residential, 4,744 commercial and 72 industrial customers.
A, B, C, D, E, F, H, I, J, L, O, P, Q.

SOUTH DAKOTA

Northwestern Public Service Company, Huron, South Dakota. S. E. Sewell, Administrative Assistant to the President. This privately owned utility distributes 7 billion cubic feet per year in east central South Dakota and central Nebraska. It has 28,669 residential and 3,564 Commercial and industrial customers.
A, B, C, E, F, G, J, K, L, M, N, O, P.

TENNESSEE

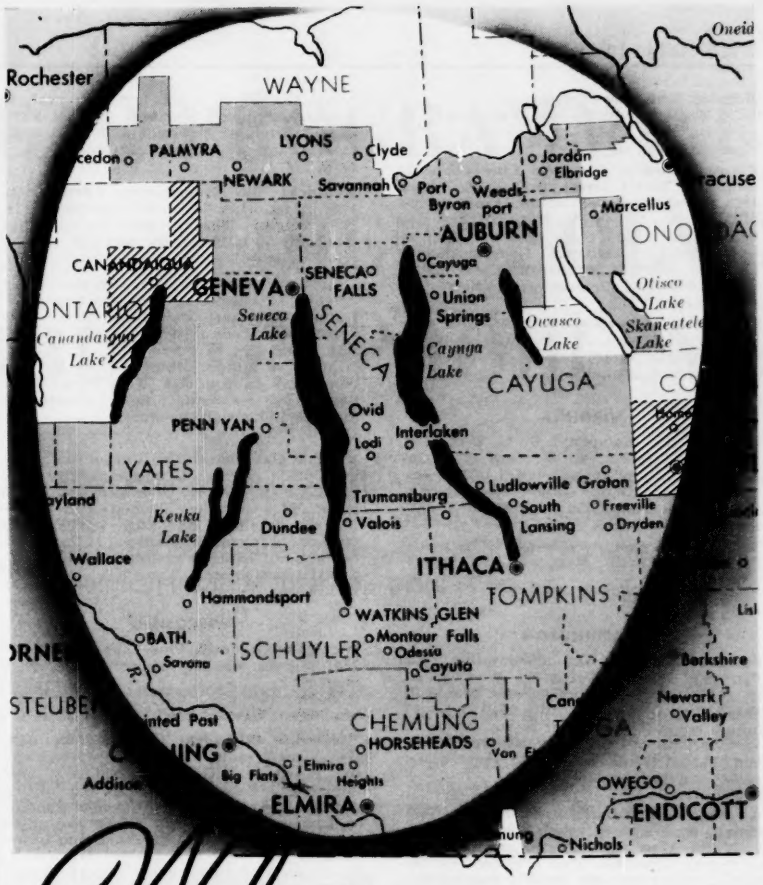
East Tennessee Natural Gas Company, P. O. Box 10245, Knoxville 19, Tennessee. This privately owned utility transmits 20 billion cubic feet per year to other utilities and distributes 30 billion cubic feet per year to consumers in Middle and East Tennessee.
E.

Jackson Utility Division — Gas Dept. 110 E. Baltimore Street, Jackson, Tennessee. P. F. Falk, Manager. This public utility distributes 2.3 billion cubic feet per year to customers in Madison County. It has 10,474 residential, 1,154 commercial and 13 industrial customers.
A, D, E, P.

Memphis Light, Gas & Water Division, 179 Madison, P. O. Box 388 Memphis, Tennessee. Daniel D. Dale, Director of Industrial Development. This municipally owned utility distributes 57 billion cubic feet per year to Shelby County consumers. It has 147,134 residential, 14,480 commercial, 179 industrial, 446 public authority and 43 interdepartmental customers.
D, E, G, I, J, K, L, Q.

TEXAS

City Public Service Board, P. O. Box 1771, San Antonio 6, Texas. V. H. Braunig, Management Consultant. This publicly owned utility transmits 18 million cubic feet to other utilities and distributes 24 billion cubic feet per year to consumers in the San Antonio Metropolitan area. It has 142,451 residential, 13,127 commercial and 683 industrial customers.
A, B, C, E, G, H, K, L, O.



Welcome ... to the Finger Lakes

Leave congestion, traffic density and large crowds behind in New York's Finger Lakes region. Join the leading national manufacturers who have found ideal locations among the rolling hills intersected with sparkling lakes which make it an ideal place to live and raise a family.

Located within a few hours of all leading Eastern markets by rail or truck, it's a wide-awake progressive area. For instance, a great new industrial research center is taking form on the Cornell campus at Ithaca.

Auburn at the top of the Finger Lakes is a leading part of a growing complex. At the southern gateway is the Elmira-Horseheads-Corning area. Each is rich in industrial opportunities, is fully prepared to work with new industry.

For further information on this area served both electrically and with natural gas by New York State Electric & Gas Corporation, call or write *E. W. Bartley, Manager, Area Development, New York State Electric & Gas Corporation, 62 Henry Street, Binghamton, New York.* All inquiries are handled on a confidential basis.

NEW YORK STATE
ELECTRIC & GAS
CORPORATION

Houston Pipe Line Company *
G. R. Walton, Industrial Sales Engineer.
P. O. Box 1188
Houston 1, Texas

Transcontinental Gas Pipe Line Corporation, 3100 Travis Street, Houston 6, Texas. This privately owned utility transmits 384 billion cubic feet to other utilities and distributes 10 billion cubic feet per year to consumers in Alabama, Georgia, South Carolina, North Carolina, Virginia, Maryland, Delaware, Pennsylvania, New Jersey and New York.

Trunkline Gas Company, P. O. Box 1642, Houston, 1, Texas. This privately owned utility transmits 134 billion cubic feet to other utilities annually.

VIRGINIA

Roanoke Gas Company, P. O. Box 1560, Roanoke, Virginia. E. V. Bowyer, Sales Manager. This privately owned utility distributes 2.5 million cubic feet and has 16,767 residential, 1,854 commercial and 30 industrial customers.

Virginia Electric & Power Company* Clark B. Spellman, Manager, Area Development
Richmond, Virginia

WASHINGTON

Cascade Natural Gas Corporation, 222 Fairview North, Seattle 9, Washington. H. B. Munton, Industrial Sales Manager. This privately owned utility distributes 13 billion cubic feet per year to consumers in 41 towns in Washington and Oregon. It has 13,000 residential, 3,600 commercial and 84 industrial customers.
E, J, L, N.

Washington Natural Gas Company, 1507 Fourth Avenue, Seattle 11, Washington. J. Wilson Gaw, Vice President in Charge of Public Relations. This privately owned utility distributes 261 million therms annually to consumers in western Washington. It has 56,200 residential, 13,400 commercial and 100 industrial customers.
A, D, I.

Washington Water Power Company, E. 1411 Mission Avenue, Spokane 10, Washington. Al Gruber, Economic Development Engineer. This privately owned utility distributes 97 million therms annually to consumers in nine communities in eastern Washington and northern Idaho. It has 14,976 residential, 2,073 commercial and 102 industrial customers.
A, B, D, E, F, I, J, L, M.

WEST VIRGINIA

Amere Gas Utilities Company, 1700 MacCorkle Avenue, Charleston, West Virginia. H. E. Frome, Manager, Industrial Sales. This privately owned utility transmits 412 billion cubic feet to other utilities and distributes 4 billion cubic feet per year to consumers in southeastern West Virginia. It has 17,031 residential, 1,980 commercial and 19 industrial customers.
D, E, I, J.

Atlantic Seaboard Corporation, 1700 MacCorkle Avenue, Charleston 4, West Virginia. This privately owned utility transmits 148 billion cubic feet to other utilities.

Godfrey L. Cabot, Incorporated, 900 Union Building, Charleston, West Virginia. This priviately owned utility transmits 3.7 billion cubic feet to other utilities and distributes 8.7 billion cubic feet annually to consumers in Calhoun, Wirt, Kanawha, Fayette, Summers and Raleigh counties. It has 18,000 residential, 1,600 commercial and 21 industrial customers.

Columbia Gas of Kentucky, Incorporated. 1700 MacCorkle Avenue, Charleston 4, West Virginia. H. E. Frome, Manager, Industrial Sales. This privately owned utility distributes 18 billion cubic feet per year to consumers in central and eastern Kentucky. It has 67,488 residential, 7,108 commercial and 109 industrial customers.
D, E, I, J, L.

Kentucky Gas Transmission Corporation. 1700 MacCorkle Avenue, Charleston, 4, West Virginia. This privately owned utility transmits 79 billion cubic feet per year to other utilities.

United Fuel Gas Company, 1700 MacCorkle Avenue, Charleston 4, West Virginia. H. E. Frome, Manager, Industrial Sales. This privately owned utility transmits 403 billion cubic feet to other utilities and distributes 40 billion cubic feet per year to consumers in southern West Virginia. It has 109,007 residential, 10,471 commercial and 208 industrial customers.
D, E, I, J, L, Q.

Virginia Gas Distribution Corporation, 1700 MacCorkle Avenue, Charleston, West Virginia. H. E. Frome, Manager, Industrial Sales. This privately owned utility distributes 9 billion cubic feet per year to consumers in central Virginia. It has 24,021 residential, 2,926 commercial, and 39 industrial customers.
D, E, I, L.

WISCONSIN

Michigan-Wisconsin Pipe Line Company *
J. H. Mikula, Manager, Industrial Development
P. O. Box 149
Waukesha, Wisconsin

Milwaukee Gas Light Company, 626 East Wisconsin Avenue, Milwaukee 1, Wisconsin. Lloyd J. Klein, Vice President and Controller. This privately owned utility distributes 45 billion cubic feet per year to consumers in an area of 572 square miles covering the city of Milwaukee and other communities in Milwaukee, Waukesha, Washington and Ozaukee Counties. It has 258,805 residential, 11,772 commercial and 1,529 industrial customers.
B, D, E, I, J, L, Q.

Wisconsin Power & Light Company *
122 W. Washington Avenue
J. R. Frederick, Director, Industrial Development
Madison, Wisconsin.

WYOMING

Cheyenne Light, Fuel & Power Company, P. O. Box 919, Cheyenne, Wyoming. Gordon Parker, Director of Area Development. This privately owned utility distributes 4.3 billion cubic feet per year to consumers in and around Cheyenne, Wyoming. It has 11,645 residential, 1,518 commercial and 16 industrial customers.
A, B, E, G, K, L, N.

PUERTO RICO

Puerto Rico Gas and Coke Compuany
Manager, Area Development
San Juan, Puerto Rico.

CANADA

ALBERTA

Canadian Western Natural Gas Company, Limited, 140-6th Avenue, S. W., Calgary, Alberta. This privately owned utility transmits 383 million cubic feet to other utilities and distributes 39 billion cubic feet to consumers annually in Calgary, Lethbridge and 61 other communities in southern Alberta. It has 79,229 Residential, 7,645 commercial and 171 industrial customers.
A, B, N.

Northland Utilities, Limited
Manager, Area Development
10042, 109th Street
Edmonton, Alberta.
Northwestern Utilities, Limited
Manager, Area Development
10040, 104th Street
Edmonton, Alberta.

BRITISH COLUMBIA

British Columbia Electric Company, Limited
Manager, Area Development
970 Burrard Street
Vancouver, British Columbia.
Inland Natural Gas Company, Limited
Manager, Area Development
1155 West Georgia
Vancouver, British Columbia.
Greater Winnipeg Gas Company
Manager, Area Development
265 Notre Dame Avenue
Winnipeg 2, Manitoba.
Winnipeg and Central Gas Company
Manager, Area Development
Natural Gas Building
265 Notre Dame Avenue
Winnipeg, Manitoba

NEW BRUNSWICK

Moncton Electric and Gas Company, Limited
Manager, Area Development
700 Main Street
Moncton, New Brunswick.

ONTARIO

The Consumers' Gas Company, 19 Toronto Street, Toronto 1, Ontario, Canada. This privately owned utility distributes 30 billion cubic feet per year to consumers in Metropolitan Toronto, Ottawa and the Ottawa Valley, and the Niagara Falls-Welland areas. It has 250,000 residential, 12,000 commerical and 3,000 industrial customers.
A, C, E, G, I, J, L.

Lakeland Natural Gas Limited, 312 Bagot Street, Kingston, Ontario. Murray MacKay, Industrial Manager. This privately owned utility distributes 6 million cubic feet per day to consumers between Port Hope and Cornwall. It has 3,000 residential, 400 commercial and 40 industrial customers.
D, E, I.

Niagara Gas Transmission Limited
Manager, Area Development
19 Toronto Street
Toronto, Ontario.

Northern Ontario Natural Gas Company, Limited, 170 University Avenue, Toronto 1, Ontario. R. M. Hunter, Director of Industrial Development. This privately owned utility distributes 20 billion cubic feet per year to consumers in northern and northwestern Ontario. It has 9,916 residential, 1,623 commercial and 13 industrial customers.
A, C, D, E, G, I, J, L, M, N.

Provincial Gas Company, Limited
Manager, Area Development
Fort Erie, Ontario.

Union Gas Company of Canada, Limited
George M. Douglas, General Sales Manager
Chatham, Ontario.

QUEBEC

Quebec Natural Gas Corporation
Manager, Area Development
6025 Cote de Liesse Road
Montreal, Quebec.

Quebec Power Company, Gas Division
Manager, Area Development
399 East St. Joseph Street
Quebec 2, Quebec.

SASKATCHEWAN

Saskatchewan Power Corporation
Manager, Area Development
1739 Cornwall Street
Regina, Saskatchewan

LET LINEAR PROGRAMMING HELP SOLVE DISTRIBUTION PROBLEMS

A method of computing distribution costs from two different oil refineries to several market areas. Many companies will find some variation of this procedure useful in choosing the most economical location for a new plant site.

By George H. Blohm

The application of the transportation method to minimize our distribution or transportation costs is undoubtedly in its simplest form. Because we believed we had a simple distribution system, a study of this nature would not have been considered in the ordinary course of events. However, we believe that our case study will illustrate to you, the value of linear programming techniques even when applied to rather simple problems.

The subsidiary company of Cities Service, which I represent, markets petroleum products in thirteen northeastern states, from Maine to Virginia. At the time this study was undertaken its products originated at two refineries, one located at Lake Charles, Louisiana, and the other in the Philadelphia, Pennsylvania area. Distribution is made from the refineries to some forty primary and secondary terminals or warehouses, thence from the terminals to customers. Every form of transportation is used in the distribution of these products, including coastwise tankers, barges, pipelines, rail and motor.

The study to minimize distribution costs was the direct result of another study which we were making to establish a planned marketing program. The object of a planned marketing program was to obtain optimum profit from the sale of our products and it involved among other things, determining the economic distribution area of each terminal in order to develop certain data required to relatively evaluate each terminal. It was not the intention of this study to either check or improve our distribution costs. It did, however, furnish certain concepts required to accomplish the minimum distribution cost study. I will briefly summarize our approach to this phase of the study and explain how it led to the distribution cost study.

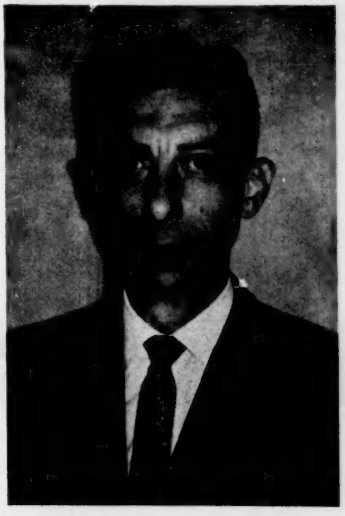
The first principle we established in our approach to this study was to ignore the cost of products at the refineries even though they differed substantially at times. We reasoned that since the supply from the refinery in the Philadelphia area was constant, the total annual cost for this supply was fixed and would not change regardless of how distribution was made. In other words, we had to consume a fixed production from the Philadelphia area refinery, regardless of the product cost at this location.

The second principle established was that consideration would be given only to those costs which were a direct function of volume.

Traffic manager for Cities Service Oil Company in New York City, George H. Blohm previously was inspector for the Truck Lines Association (Eastern Railroads). He joined Cities Service as a rate clerk in 1945 and was made assistant traffic manager in 1947. Prior to assuming his present position, he served as research analyst. In his work now he is responsible for all for-hire transportation requirements via rail, motor, air and water, and all related activities. He is also responsible for minimizing distribution costs.

Mr. Blohm has attended the Academy of Advanced Traffic, Northwestern University, and the Operations Research Institute. He was admitted to practice before the Interstate Commerce Commission in 1946.

The accompanying study was adapted from a speech given by Mr. Blohm at a recent AMA finance orientation seminar.



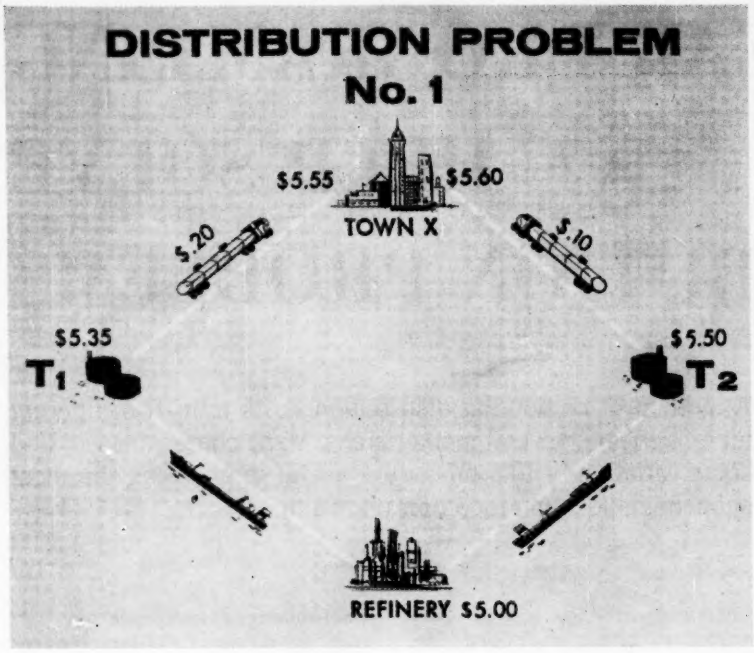


Figure 1

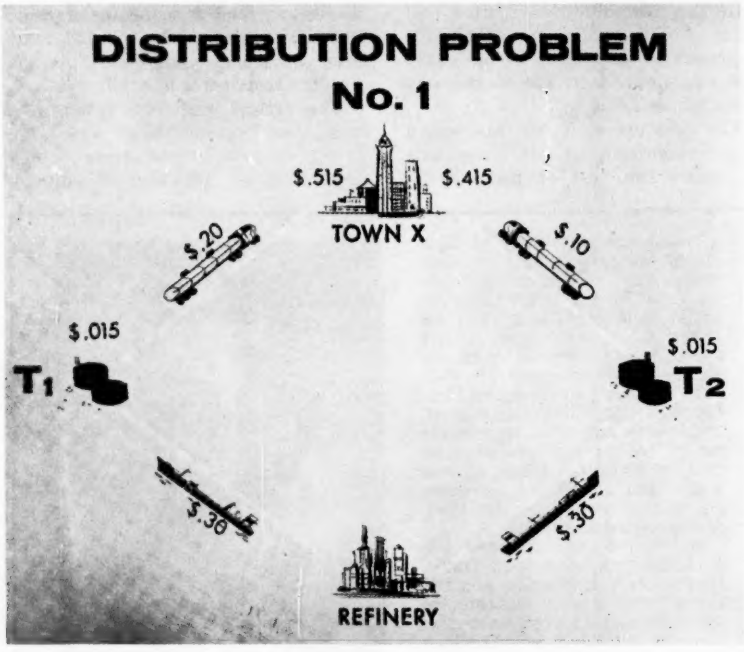


Figure 2

These costs included transportation, transportation product losses, terminal stock shortages and terminal power or utility expense. A transportation cost is incurred with each movement of product from one point to another. From records, we calculated the percentage of product loss incurred in transportation for each grade of product. The percentages varied not only with product grade but also with the type of transportation and transit time involved. Terminal stock shortages and terminal power or utility costs were also calculated from data contained in company records. Transportation losses and terminal stock shortages result essentially from evaporation.

No consideration was given to the constant or fixed costs such as depreciation, taxes, insurance, and, as a matter of fact, labor. Terminal labor is a constant within limits. The volume through a terminal can substantially increase or decrease without affecting labor costs.

With these principles firmly established, we proceeded to determine the boundaries of economic distribution of each terminal. The boundaries were established through cities and towns where the total costs were the same from two terminals whose distribution areas were contiguous.

When we had completed this phase of the Planned Marketing Program Study, we tested our actual distribution and found in many instances it did not conform with our findings. Investigation disclosed the method prevalently utilized to determine the source of supply for any destination was to take the cost of goods, calculated by the Accounting Department, at a terminal and simply add the transportation cost to destination. The combination that produced the lowest total cost determined the supplying terminal.

Figure 1 illustrates the method used. The costs shown at terminals T-1 and T-2 are fully distributed costs and contain the refinery cost, terminal depreciation, taxes, insurance, etc. It indicates that town X should be served through terminal T-2 at a savings of five cents.

This method was used in the absence of a better procedure. In many instances, terminal costs alone were responsible for improper and costly distribution of products and

it had the effect of continuing to improve the unit costs at some terminals while increasing it at others. More important, however, it increased our transportation costs.

Figure 2 portrays the same situation, using variable costs only. Now you can see that if we served point X through terminal T-1 by using the Cost of Goods method, instead of saving the company five cents, we would be costing the company ten cents. It is obvious then that we should serve town X through terminal T-2, because only by that route is the transportation cost from the refinery to town X minimized, and, therefore, earnings maximized.

While we could not readily develop the penalties imposed on our earnings by the use of the cost-of-goods method, we believed it was substantial. We, therefore, initiated the Minimum Distribution Cost Study.

The principle problem now was to establish a procedure to minimize transportation and terminal expenses in the distribution of our products, in a manner that would be easily understood. This was accomplished through the use of the transportation method.

We calculated the variable costs from each refinery to each terminal and set them into a matrix. The supply available at each refinery and the demand required at each terminal was also inserted into the matrix.

Figure 3 shows a matrix for one grade of gasoline. Across the top is a partial list of our terminals. The two refineries are shown on the left. The bottom row of figures indicate the demand at each terminal and the column at the right indicates the supply available at each refinery. You will notice that the supply is equal to the demand.

The figures in the matrix represent the total variable costs from the refineries to the terminals. Those in parenthesis indicate the volume that should be supplied by each refinery to each terminal.

You will also notice that in every instance the costs from the Philadelphia refinery are less than those applying from Lake Charles. This provided the differentials shown in the second row from the bottom which made our problem relatively simple. In order to effect minimum distribution costs, we

MINIMUM DISTRIBUTION COSTS
PREMIUM GASOLENES
(distribution costs in cents per barrel)

	Phila. Truck	Phila. Barge	Wilmington	Baltimore	Norfolk	East Braintree	Portland	Ferry Island	Bridgeport	Linden	Others	Supply Total
LAKE CHARLES	38.09	28.91	46.21	37.21 (51)	35.20 (103)	39.98 (467)	44.18 (55)	28.91 (227)	29.47 (157)	28.91 (648)	(1,284)	4,169
GIRARD POINT	4.00 (225)	2.00 (2)	19.37 (52)	14.56 (503)	13.80	19.33	23.53	11.03	12.98	13.18		782
DIFFERENTIAL	34.09	26.91	26.84	22.65	21.40	20.65	20.65	17.88	16.49	15.73		
DEMAND	225	2	52	554	103	467	55	227	157	648	1,284	4,951

Figure 3

first shipped product from the Philadelphia refinery to the terminal that showed the greatest distribution cost savings or higher differential versus Lake Charles.

When we had supplied that terminal's requirements we supplied the terminal having the next highest differential from the Philadelphia refinery, and so on until the entire supply at the Philadelphia refinery had been exhausted. The remaining terminals were then obviously served from Lake Charles.

From this matrix we were able to establish a minimum differential to be used to determine whether any destination in our marketing territory should be served with products from the Philadelphia or Lake Charles refinery. In this case it is 22.65 cents and is shown in the black square. The minimum differential is determined at the point where the supply of the Philadelphia refinery is exhausted. When the minimum differential is known, we can immediately determine whether any city or town should be supplied with a product from the Philadelphia or Lake Charles refinery. It is necessary only to calculate the total variable costs to the city or town from both refineries. If the differential, in this case, in favor of the Philadelphia refinery, is not greater than 22.65 cents, it should be served from Lake Charles.

This matrix served as a shipping schedule and was changed as any of the factors required it. A change in any cost factor, supply, demand and number of terminals requires a change in the schedule and usually results in a change in the minimum differential.

If, for example, the total demand at the first four terminals dropped to the extent that some product was still available at the Philadelphia Refinery for the Norfolk Terminal, the minimum differential would decrease to 21.40 cents.

Since this schedule became effective we have experienced many changes, resulting from changes in the cost factors, supply and demand. This method has enabled us to immediately correct our distribution to minimize costs. Another advantage of this schedule is that we can immediately calculate the penalty in instances when it cannot be conformed with. A situation of this kind may occur for many different reasons. High seasonal inventories, a lack of transportation facilities, insufficient tankage, a decided increase in demand, are among some of the reasons.

This study produced a simple procedure to minimize distribution costs. It consists of using only those costs which are a function of volume, and the determination of the refinery which should supply a given terminal or destination is governed by the differential existing in the total costs from both refineries. Since this procedure has gone into effect some three years ago, substantial reductions in distribution expense have been reported.

UTILITIES AND THE COMMUNITY

Utilities, such as water, electricity, sewer facilities and gas, and how they stand in the community growth and industrial development picture, are discussed here by an expert in the community planning field . . .

By J. Paul Jones

Nearly everyone has been exposed at one time or another to papers and presentations on the general topic of industrialization and methods and techniques for the encouragement of industrial development. I will try to stay within my professional limitations as a community planner and will not try to "out-expert the experts." There are people who know more of the detailed utility requirements of industry than I will ever know; however, I do believe that some emphasis on the community planning aspects is warranted.

As a community planner I have had occasion to classify community attitudes regarding industrialization and utilities as follows:

1. Communities which will go to great lengths to attract industry and will make unrealistic statements and commitments far beyond the capacity of either the utility companies or their public works departments.
2. Communities which want no industry at all and thus prevent the growth not only of the community but also hamper needed extensions of utilities.
3. Communities which falter along on a "hit-or-miss" basis and attract sporadic industrialization, with no real thought about future utility requirements.
4. Communities which only want research-center types of industrial development.
5. Communities which realistically assess the resources of the utility companies and appraise their own technical and financial limitations.

Utility and use are synonymous. Utilities without users do not assure the maximum potential development of an area. By the same token, potential users without adequate utilities cannot expand, diversify or decentralize when appropriate. In the short time we have available, it is impossible to handle adequately the detailed technical aspects of the utility requirements of industry. I have, therefore, tried to develop some guideposts to assure a middle course between a technical guide and pleasant generalities. The most realistic way of approaching this objective is to group the material under three major headings:

1. A general discussion of the major utilities and the general requirements of industries.
2. An exploration of the inter-relationships between industrial planning, utilities, and community responsibilities.
3. Some "dos" and "don'ts" regarding utility extensions for industrial development.

The most important utilities for industrial development are water, electricity, sewers, and gas.

Water is Most Important

The availability of water is unquestionably the most crucial utility requirement for industry in the sense of being the least amenable to the manipulation of nature by men. There must be an adequate natural source of water close to every industrial site.

It is not generally recognized that industry uses many times as much water as our municipal water systems all over the country. As of 1950, the American Waterworks Association estimated that industry consumed 81 billion gallons on an average day, as compared with 14 billion gallons in all public municipal water systems. The only water user larger than industry was agricultural irrigation, with 100 billion gallons a day. Water resources have a number of varying characteristics which affect their usability by industrial plants.

One of the most important of these characteristics is hardness, or the amount of dissolved minerals in the water which may form

(Continued on page 98)

Where in the world are you? You're in fabulous Washington State — where space, water, power, and happy living abound.

By 1970, more than 10 million people will live within a 500-mile radius of this stream. Today the State of Washington is *the heart of the West's second largest market*... in terms of population, buying power, and booming industries.

Giant new oil refineries ($200 million investment) dot our Canadian border. Along the flanks of the Columbia River, bustling new cities are being born overnight from aluminum, chemicals, atomic energy. Dozens of electronic firms work 'round-the-clock pouring hundreds of new products into the Pacific Coast's aircraft and missile industry.

If you're in the mood to move West, get in a happy mood... think about Washington. Get in on the ground floor of a great new industrial complex. There's a big hungry market here, and all of the West, Alaska, Hawaii, and the Orient stand at your doorstep.

Washington State wants you. We've plenty of room. Come join the boom.

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STATE OF WASHINGTON

(Continued from page 96)

scales and silica deposits in pipes and boilers. There is a surprising variation in the hardness of water taken from a stream or river, depending on the amount of seasonal flow. Water of acceptable hardness in the winter may become harmful in the summer when the flow decreases. The amount of flow also has a strong effect on the amount of salt water infiltration in rivers which run into the ocean.

Another factor in the water supply affecting industry is the temperature of the water. By far the greatest use of water for industry is for cooling. Vast quantities are required for certain types of manufacturing as, for example, in sulphite pulp mills, which use 64,000 gallons of cooling water per ton of products and in viscose rayon mills, which use 200,000 gallons per ten of products.

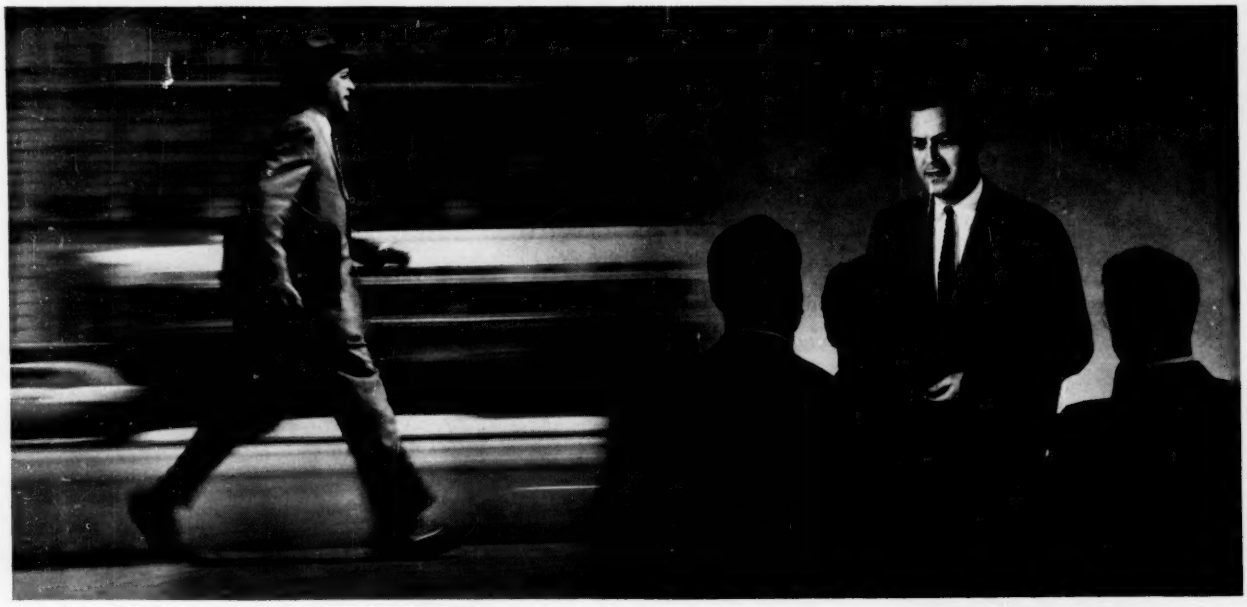
Water pollution has a direct relation to industry, both in the cost of treatment of incoming water and in the control of the nuisance characteristics of the outgoing affluent. Many states have enacted strong anti-pollution legislation. Occasionally, pollution can be an asset. In sections of the anthracite area in northeast Pennsylvania, the streams have such a high acid content due to the coal workings that sewage and some industrial waste is automatically neutralized!

Waste Disposal Essential

Adequate facilities for waste disposal in any industrial development must be assured. Since most communities in the United States now have sewer systems adequate to serve normal sanitary sewage disposal requirements, the problem of disposal of waste must be considered on an individual basis. Obviously, some industries have disposal problems which aggravate a local condition. This is particularly true in the case of the "company town," wherein a single major industry dominates the entire community and may employ a majority of the residents of the community. Ultimately, the industry either outgrows the community or conversely, the community outgrows the industry. In one instance, a large industry whose employees made up 75 per cent of the population of the community had no real disposal problem.

However, as the community grew and more people became non-company personnel, the community at large developed a growing awareness of the disposal problems presented by the industry. Partially-treated waste which had previously flowed in open ditches raised no objection on the part of residents. As the community grew and became predominantly "non-company," the disposal problem suddenly became a prime source of irritation. The community, feeling that it did not have the resources to provide adequate municipal drainage attempted to prevail on the industry to carry the burden of cost.

The industry, on the other hand, feeling that the community had now grown to a point where it should accept some responsibility for its future, insisted that the community pay for disposal and drainage. No solution appeared possible until the industry had its growth potential analysed and projected on a long-range basis. In the process



Because Union Electric goes more places, sees more people,

of projecting this growth, a study of the community was essential. It was possible, ultimately, to develop a program whereby the industry provided its own pollution-control measures and the community bore its burden of providing adequate sewerage and drainage.

The mere fact that existing industries find adequate disposal, drainage and sewage facilities does not mean that new industries can be adequately served. In many cases, the existing facilities are operating at near capacity and the introduction of new industrial development may over-tax them to a point of complete ineffectiveness. Thus, in providing for either an individual tract or an industrial park site, it is essential that a full and complete evaluation of drainage and sewage dispoal requirements and systems be made.

Adequate Power Sources

In developing any individual industrial tract or industrial park, the existence of high-tension power lines with sufficient voltage is essential. Likewise, since industrial growth encourages residential growth, the extension of power to the residential areas which will develop must be assured. Many sections of the country have enjoyed industrial expansion solely because of the existence of adequate sources of power. For example, New England in general, enjoyed considerable industrial development during the 19th century because of the availability of water-generated electric power. Other sections of the country have been favored with industrial development due to the advent of effectively utilized steam power.

The transmission of electric power over long distances has resulted in decreased dependence upon the proximity to water resources. With the exception of the elctro-metallurgical and electro-chemical groups of industries, power is no longer normally considered a dominant locational factor. The industrial developer must carefully compare power costs, reliability and types of services available. The industry must also evaluate the desirability of producing its own power vs. purchasing power from others. Due to the size of utilities, the diversified load, and the increased efficiency of generating plants, the cost of purchased power has been kept at relatively low levels. It is imperative that the community and the private industrial developer consider such items as capital outlay, costs of failures and repairs, and the cost of stand-by service before determining the economic feasibility of such installation.

There is always the consideration of establishing industrial development in rural areas as opposed to urban areas. While the rural areas have many advantages, quite often the distribution lines are of insufficient capacity to serve large new industries. It is essential to check the availability of increased services from utility companies operating in the area under consideration.

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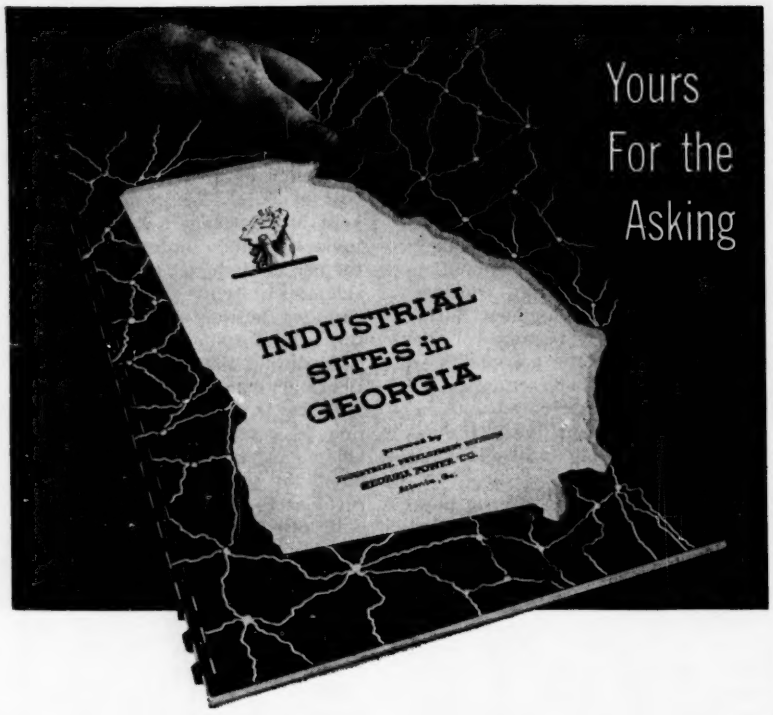

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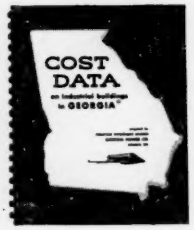

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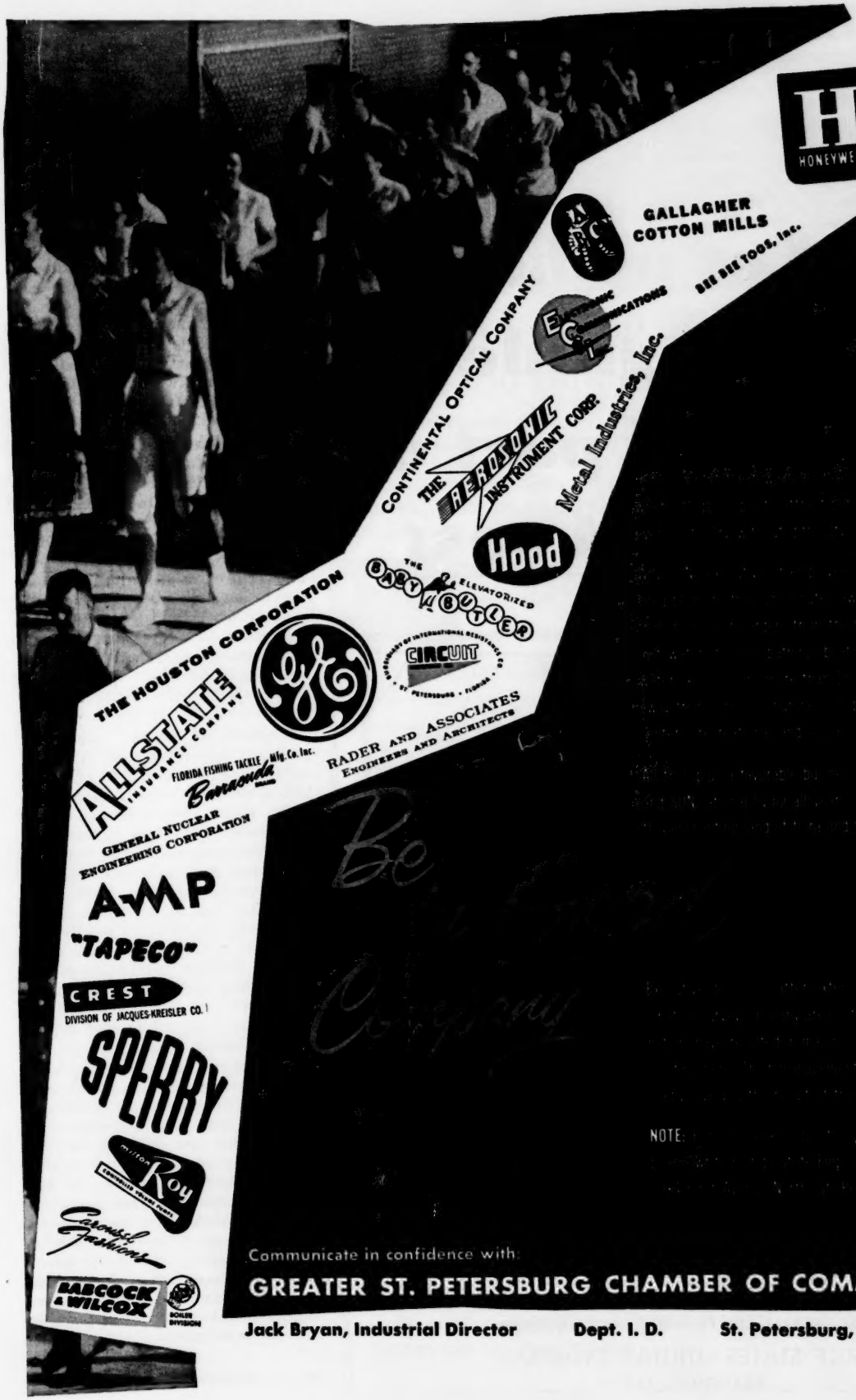
required solution. In many areas there are peak users of available power which cause periodic temporary shortages. For example, some specific operations are seasonal in nature, such as agriculture harvesting, fish-canning and the prevalence of household electrical heating units in moderate-climate areas. Such items as motor wiring can cause headaches when the phase, cycle and voltage of the supply of power do not complement the wiring of equipment utilized by the plant. The potential industrial developer is thus faced with the possibility of extensive conversion or transformer losses.

Utility rates should be carefully analysed prior to establishing or selecting an area for industrial development. There is a considerable differential in rates in various parts of the country.

Another factor of considerable impact on the entire industrial development picture is the cost of power to individual home owners. Such home owners, who are employees of the industrial plants, may be faced with an increase in the cost of living, resulting in demands for increased wages and higher operating costs for the industrial developer.

Natural gas has been piped into almost every important metropolitan area of the country. Most of the technical problems of transporting gas under high pressure have been solved through improvements in seamless and welded steel pipe. Gas is thus easily converted to steam or electric power. Taxing policies of the producing states, cost of construction and maintenance and a relatively rapid dissipation of this valuable natural resource have forced the cost of natural gas to constantly increase.

Since the importance of coal is well known, no detailed discussion is required. Suffice it to say that community planners who are accustomed to thinking in the long-range atmosphere are not blind to the possibility of a resurgence of the importance of coal in the industrial and utility programs for the ensuing 20 to 30 years. Communities and industrialists truly looking at the long-range aspects of industrial growth must consider this as a possible eventuality. Coal supplies have not, and will not, shrink



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Planning Functions

The second item for discussion — the inter-relationship of the community planning function with industrial site location — is less subject to rules and requires a great deal of judgment . . . it is the inter-relationship between industrial planning, utilities and community responsibilities.

In exercising his function of determining future land uses and considering the relationships of utilities to these land uses, the planner has at his disposal some very useful techniques. Subdivision regulations may be drafted that seek to assure that future residential subdivisions will be developed in accordance with good standards and will assure that contiguous land uses are harmonious. Further, certain minimum standards regarding utilities, streets, lot sizes and densities may be established.

Subdivision control has been gradually expanded over the years under broad state enabling legislation to permit a variety of requirements which some time ago would have been impossible of achievement. For example, in the Township of Marple, Pennsylvania, the courts have ruled that it is within the proper exercise of the power of the community to require subdividers to install sewers, capable of serving the ultimate population of the surrounding area. In many cases, this means that the sewers are actually over-designed for the particular subdivision.

The main basis for reaching such a decision was the premise — supported by actual cost computations — that it was more economical to install trunklines oversize initially, than to put in minimum size lines and subsequently have to tear out the streets to enlarge the lines. Under this provision, subdivisions which at present are being served by septic tanks, also have sewer mains in place below the streets within the rights-of-way. When subsequent development takes place it will be a simple matter to tie-in

the system to the entire sewage disposal system of the community. The provision of lateral and house sewers will then provide service to the entire area.

The same type of foresight could be utilized in providing expansion with respect to power lines, gas lines, and water service. Many areas have been restricted in ultimate development because of jurisdictional disputes over extending services from the central city to outlying fringe areas. Thus, while the utilities may be perfectly willing — in fact, eager — to extend power to the fringe areas, the central city has been reluctant to extend water and sewerage and does so only at increased service charges. Many communities have felt this reluctance to extend services would encourage annexation or consolidation of fringe areas with the central city.

One of the most significant advances in community planning, as it affects utilities and industries, is performance zoning. The usual technique in performance zoning is to specify the development of a specified number of acres with control over noise, odor, traffic, land coverage and other factors to assure that differing types of land use can coexist harmoniously. Under this approach, it is possible for a large industrial development to be contiguous to a stable and desirable residential development. The controls over the land uses in the industrial development assure that both the residential and the industrial areas will be protected.

Who Provides Services

Now, we come to the question of who should provide what services. Should the industrial developer provide for drainage, for sewerage disposal, peripheral roads, schools for the children of industrial workers, and deal directly with the various utilities for the extension of services? or, should the community provide all of these services for the industrial developer? **There is no cut-and-dried answer!** Each case must be considered and evaluated on its own merits. If the community and the industrial developer have long-range development expansion programs to guide their future devel-

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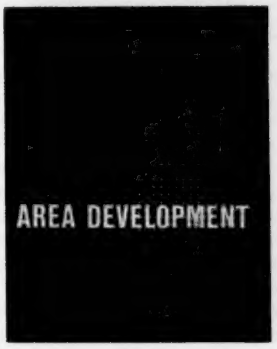

This comprehensive, authoritative textbook on industrial development, community improvement and area promotion will be published this month. Written by members of the staff of INDUSTRIAL DEVELOPMENT magazine, and reviewed by the top men in the development field, this handbook is a definite necessity for those interested in or working in community, area, or industrial development. The bibliography alone provides more than 2,000 reference sources. The extensiveness of the editorial content is indicated by the chapter headings:

(1) Understanding the Growth Process; (2) Organizing for Area Development; (3) Area and Community Analysis; (4) Planning and Zoning; (5) Financing Industral Development; (6) Industrial Buildings; (7) Selling, Advertising and Promoting; (8) Future Trends in Area Development and (9) Sources of Information.

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opment, there is bound to be an exchange of ideas and objectives which will assure that each will provide his fair share of the burden of the cost of industrial development and growth.

Since industrial development naturally entails the provision of many services other than utilities, and since industrial development has a direct impact on the growth of the community and its requirements for schools, recreation areas, internal streets, water, power, gas and other facilities, it is essential that there be an interchange of ideas, plans and resources. It is a joint burden that must be shared, with each bearing his proportionate share of the cost. In areas where a joint sharing of costs has not been possible, the result has been — to varying degrees — industrial stagnation. Many times a single paternalistic industry, seeking to protect its position as the "great white father" actually discourages the development of other industry within the community.

Some "Do's" and "Don'ts"

DON'T allow local politicians to "over-sell" by rash promises regarding extensions of utilities. The Mayor of one small southwest community, in an attempt to attract a desirable industry, promised the extension of water, sewers, roads and power to an isolated site. When the developer, on his own, checked the cost of the proposed extensions, he quickly determined that the community could not possibly bear the $1½ million required costs.

DON'T let the local planners underestimate or eliminate the needs for industrial utility extensions in their capital improvement programing. Quite often the current needs of developed areas are so great, the planners and public works officials tend to place in low priority, improvements necessary for healthy industrial growth. They must be made to realize the importance of this phase of capital improvements programing.

DON'T get carried away with "industrial parkitis." Industrial parks are definitely suitable to some types of industries and some communities. However, there are many swamp areas glorifed by the term "industrial park" which will never be developed successfully.

DON'T have detailed plans for industrial parks prepared before you know the type, number and requirements of industries you hope to attract. Too many costly plans have been prepared with sewer, drainage and power requirements based on the "normal" user or the "average" industry. There are no real "norms" or "averages" in industrial requirements.

DON'T let the small but vocal "do-gooder" voice convince the community leaders that the "ideal" community is one that has very little or no industry. These groups usually insist that available funds be expended for services other than needed utility extensions and strongly oppose any attempts at "performance zoning" for industry. Force them to support their stand by findings of a long-range economic base study and a workable capital improvements program.

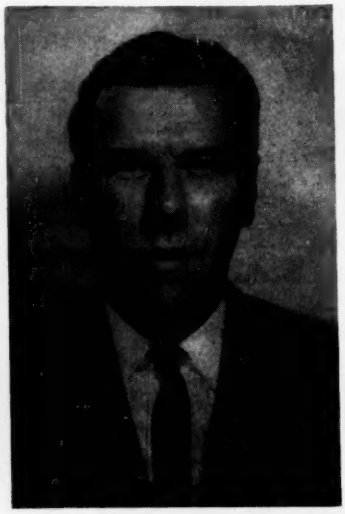
DO be completely honest in promotional material. Potential industrial developers are not stupid or naive. One mid-western community is much more successful in attracting industry by frankly stating that its sewage collection system is in dire need of rebuilding and expansion. Potential industrial developers are thus able to consider their own costs more realistically. Knowledge that it must assume a burden is more important than the actual burden in many cases. Ultimately, industrial growth may permit the rebuilding of the sewage collection system.

DO seek to make industrial development activity community-wide. Too often industrial development groups do not have effective liaison with the public works department, the city planners, and the utility companies. This can be of utmost importance in securing assistance in zoning matters and help from the area development officers of the utility companies and in establishing reasonable commitments to industrial developers regarding utility extensions.

DO present suggested solutions to problems concerning the extension of needed utilities to public works officials, city planners and utility companies. There is nothing to be gained by destructive criticism of these groups for not cooperating without some positive suggestions for improvement.

To end on a thought-provoking note — think of the great potential and challenge ahead in power development. There is really no limit to the sources of power — atomic, solar, sonic. All may ultimately be utilized. While admittedly "blue sky" resources at this time, there may be some adjustments ultimately necessary in our approach. The utility companies will be in the best position to evaluate, adjust, adapt and advise. In your long-range thinking, it is essential that you maintain close liaison with their area development groups.

COMMUNITY PLANNER



John Paul Jones is director of community planning, and community and industrial planning for Ebasco Services, Inc. His background includes experience in urban renewal in New York, six New England states, nine Western states and Alaska. He also has had experience in being responsible for regional and metropolitan area planning in nine Western states, Alaska and Hawaii.

Prior to joining Ebasco, Mr. Jones was with the Urban Renewal Administration in various capacities and later served as planning engineer in Norfolk and Charlottesville, Virginia. His academic background includes attending the College of William and Mary and the University of Virginia, receiving degrees in economics and architecture. He is a member of the American Institute of Planners and the International Federation of Housing and Town Planning.

RECENT RELEASES

By SUZANNE JOHNSON

GENERAL REPORTS

Zoning of Planned Residential Development by Eli Goldston and James H. Scheuer. Dealing with the urban renewal projects in central city areas, the authors suggest a model provision for incorporation into existing municipal zoning ordinances. They employ this model as a vehicle for the discussion of the issues involved in drafting such zoning provisions. Urban Land, March 1960. Urban Land Institute, 1200 18th Street, N.W., Washington 6, D. C. 8 pages, $1.

The Regional Impact of Highways by Philip B. Herr. This study analyzes, describes and measures the pattern of transportation costs, in addition to studying the effect of highway location on these costs. Urban Land, February, 1960. Urban Land Institute, 1200 18th Street, N.W., Washington 6, D. C. 8 pages, $1.

Dynamic Factors in Land Values by Homer Hoyt. In this bulletin Dr. Hoyt points out factors which have affected the value of urban land in the past and which influence present day appraisals. In addition he cites conditions which should be taken into account in arriving at future estimates of land value. Technical Bulletin 37, Urban Land Institute, 1200 18th Street, N.W., Washington 6, D. C. 15 pages, $2.

Chemical Economics Newsletter, November, 1959 and January, 1960. Stanford Research Institute, Menlo Park, California. 36 and 18 pages respectively.

Western Resources Handbook Data Sheets — 29th issue. Stanford Research Institute, Menlo Park, California. 40 pages.

AREA REPORTS

The Michigan Economy — Its Potentials and Its Problems by William Haber, Eugene C. McKean and Harold C. Taylor. This study of the Michigan economy is regarded as more exploratory than definitive. It spells out the needs for further study and the direction in which further study ought to proceed. It is divided into two major parts, The Problem and Its Origin and Prospects for the Future and covers employment trends, changes in automotive employment and industrial and economic trends. A large number of tables and charts are included. The W. E. Upjohn Institute for Employment Research, 709 South Westnedge Avenue, Kalamazoo, Michigan. 1959, 295 pages, $3.25.

Handbook of Latin American Studies No. 21. The handbook lists studies by contributing editors ranging from anthropology, art, economics, education, labor and social welfare to philosophy. A brief outline is given of each study. University of Florida Press, Gainesville, Florida. 1959, 331 pages, $12.50.

Southern Pacific. A brochure outlining the services available to site-seeking executives by the Southern Pacific. Southern Pacific, 140 South Dearborn Street, Chicago, Illinois. 10 pages.

Future Development Patterns — Delaware Valley Region of Burlington County, New Jersey. This publication sets forth the results of a two-year planning program covering all major aspects of development on a regional scale. Community Planning Associates, Inc., P. O. Box 206, West Trenton, New Jersey. 1959, 87 pages, $7.50.

INDUSTRIAL DEVELOPMENT MANUFACTURERS RECORD BRIEFS

The reluctance of the public and politicians to recognize that America is now an urban and metropolitan nation is the most serious obstacle to community planning today. That was the view expressed by Boyd T. Barnard of Philadelphia, president of the Urban Land Institute, in a recent talk before the National Construction Industry Conference of the Chamber of Commerce of the United States. "The frontiers of America today are unquestionably its cities," he said. "All our growth within the next two decades will take place there." Mr. Barnard pointed out that the metropolitan population will probably number 90 million more persons by 1980. He urged that "urban sprawl" be controlled by "building in the air" with apartment clusters. Low housing offering "the most for the money and good community living" was also endorsed.

• • •

Marvin M. Sutherland, formerly executive assistant to the late Raymond V. Long, has been named acting director of the Virginia Department of Conservation and Economic Development. Mr. Sutherland came to the department from the State Budget Office where he had been assistant director under Mr. Long since 1952. Prior to that time he had served as a research engineer with the State Planning Board and, following service in the Marine Corps during World War II, he was connected with the Division of the Budget.

• • •

A listing of 45,000 New York State manufacturers and 7,000 New York State products available for export has been supplied to more than 200 United States Foreign Service officials throughout the world by the State Department of Commerce.

State Commerce Commissioner Keith S. McHugh said that this move has been made to help New York State industries to expand their foreign markets. It is in furtherance of the National Export Expansion Program recently initiated by the U. S. Department of Commerce to counter

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Iowa

IOWA "MANUFACTURING MEADOWS"— Clinton, Iowa (population 35,000). 138 miles west of Chicago on Mississippi River and Lincoln Highway (U. S. 30). 190 acres within city. Master plan by Skidmore, Owings & Merrill. Served by Chicago and North Western Railroad. Developed by Clinton Development Company, a civic-non-profit corporation. CHapel 2-4536. R. J. Stapleton, Managing Director. Services available: (a) (optional), (c), (e), (g), (f) (optional). (p), (r), (t), (w), restrictions.

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BRIEFS

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* * *

New trustees of the Southern New Jersey Development Council are Vernon F. Stanton, vice president of South Jersey Gas Company, and Mark D. Ewing, manager of area development for Atlantic City Electric Company. In utilities work since 1919, Mr. Stanton has been vice president of South Jersey Gas since 1951. Mr. Ewing has been with Atlantic City Electric for 19 years. Both men are active in a variety of business and civic endeavors.

* * *

Governor William F. Quinn of Hawaii has signed into law a tax reduction measure that will save Hawaii's business and industry over $3 million annually. The major targets of the bill are taxes on gross revenues in agriculture, manufacturing and wholesaling. Coupled with the tax reduction measure, which also reduced personal income taxes by $4 million, was a legislative "hold-the-line" attitude on the state operating budget. Adding to the state's bonded indebtedness was also held back in favor of pay-as-you-go capital improvements. The tax reductions are to become effective January 1, 1961.

* * *

String beans a yard long are not considered unusual on the Netherlands West Indies Island of Aruba. But two years ago the amount of home grown vegetables scarcely would have filled a market basket. The king-size beans, along with a score of other vegetables, come from an eight-acre nutriculture farm where the needs of arid Aruba's 58,000 inhabitants are filled by growing vegetables in gravel-filled concrete tanks. The crops are nourished by distilled seawater to which chemical foods have been added. The distillation plant changes salt water into fresh, pure water at the daily rate of 2.7 million gallons. This addition of fresh water has opened up tremendous new development possibilities for the island, officials here believe. The nutriculture farm is operated by Sy Raymond Robins, an American expatriate and one-time University of Miami football player.

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BRIEFS

American Industrial Development Association officers for 1960, named at the recent meeting in Atlantic City, are: Lewis Holland, industrial manager of the San Francisco Chamber of Commerce, president; William R. Davlin, secretary, Pennsylvania Department of Commerce, first vice president; Melvin D. Peach, executive Assistant of the New England Council, Boston, second vice president; Thomas Finney, vice president of the First National Bank of Dallas, treasurer. J. Huber Denn of Newark, Delaware, was continued as secretary.

* * *

Miss Shadduck

The Idaho Department of Commerce and Development has recently set up an industrial research division, and the department has begun publication of an industrial and economic bulletin. Further out-of-state industrial promotion trips are planned and effort in-state has been increased to further growth and diversification. The department is headed by Miss Louise Shadduck who was appointed to the job in 1958 in a precedent-shattering move made by Governor Robert E. Smylie. Since that time she has focussed western attention on the important role women are playing for industrial development. She heads a staff of 10, and her department is responsible for tourist promotion as well as industrial development.

* * *

Raymond D. Wallace of Henderson, Kentucky, works manager of the Spencer Chemical Company, is the new president of the Kentucky Chamber of Commerce. Smith Broadbent of Cadiz, president of Broadbent Hybrid Seed Corn Company, was reelected first vice president, and John W. Woods, Jr., president of the Third National Bank of Ashland, was reelected treasurer. Regional vice presidents named were Thomas A. Paxton, Paducah; Henry T. Parrott, Campbellsville; James B. O'Rear, Frankfort; Robert B. Begley, Richmond; C. Hunter Green, Louisville, and B. F. Reed, Drift.

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INDEX TO PROFESSIONAL AFFILIATIONS

AIDC	American Industrial Devel. Council
AIP	American Industitute of Planners
AMA	American Management Association
ARDA	American Railway Devel. Assn.
ASPDA	Assn. of St. Plan & Devel. Officials
ASPO	Amer. Society of Planning Officials
EEI	Edison Elec. Inst. (Area Dev. Comm.)
GLSIDC	Gt. Lakes Sts. Ind. Devel. Council
NIDA	Northeastern Ind. Devel. Assn.
NIZC	Natl. Industrial Zoning Committee
PNWIDC	Pacific N.W. Ind. Devel. Council
SIDC	Southern Industrial Devel. Council
SIR	Society of Industrial Realtors
ULI	Urban Land Institute

EXPANSION PLANNING INDEX

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Arkansas Western Gas Company, Bob S. Wright, Advertising Manager, 28 East Center Street, Fayetteville, Arkansas. (Ad page 77)

Baltimore Gas and Electric Company, Robert J. George, Industrial Development Engineer, 1102 Lexington Building, Baltimore, Maryland. (Ad page 80)

Greater Burlington Industrial Corporation, Charles D. Townsend, Executive Director, 191 College Street, Burlington, Vermont. (Ad page 1)

Carolina Power and Light Company, D. E. Stewart, Manager-Area Development Department, Insurance Building, Raleigh, North Carolina. (Ad page 9)

Chesapeake and Ohio Railway, Wayne C. Fletcher, Director-Industrial Development, 1103 C & O Building, Huntington, West Virginia. (Insert between pages 16 & 17)

Chicago, Rock Island and Pacific Lines, P. J. Schmidt, Manager-Industrial Development, LaSalle Street Station, Chicago, Illinois. (Ad page 55)

Consumers' Gas Company, D. F. Connor, Manager-Industrial Development Department, 55 Adelaide Street, Toronto, Ontario, Canada. (Ad page 89)

Georgia Power Company, Gene A. Yates, Jr., Vice President, P. O. Box 1719, Atlanta, Georgia. (Ad page 100)

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Madera Acres, Inc., Jerry Fender, 235 East Yosemite Avenue, Madera, California. (Ad page 13)

Michigan Consolidated Gas Company, R. L. Gage, Manager-Industrial Development Division, 415 Clifford Street, Detroit, Michigan. (Ad page 86)

Mid-Western Ontario Development Association, Elmer Goebel, Director, 258 Ontario Street, Stratford, Ontario, Canada. (Ad page 10)

G. E. Miller and Company, Giles E. Miller, 3415 Westminster, Dallas, Texas. (Ad page 106)

Niagara Mohawk Power Company, Richard F. Torrey, Director-Area Development, 300 Erie Boulevard, Syracuse, New York. (Ad page 90)

New York State Electric and Gas Corporation, E. W. Bartley, Manager-Industrial Development, 63 Henry Street, Binghamton, New York. (Ad page 91)

Northern Illinois Gas Company, Harold J. Roth, Manager-Industrial Development, 615 Eastern Avenue, Bellwood, Illinois. (Ad page 85)

Northern Natural Gas Company, Perry F. Roys, Manager-Area Development, 2223 Dodge Street, Omaha 1, Nebraska. (Ad page 87)

Panhandle Eastern Pipe Line Company, Albert H. Hargreaves, Manager-Industrial Development, 1508 Fletcher Trust Building, Indianapolis 4, Indiana. (Ad 4th cover)

Pitt County Development Commission, L. A. Weston, Economic Consultant, P. O. Box 426, Greenville, North Carolina.

Prince Georges County Industrial Development Commission, S. Walter Bogley, Jr., Executive Director, Chamber of Commerce Building, Hyattsville, Maryland. (Ad 3rd Cover)

Puget Sound Power and Light Company, Stewart G. Neel, Manager-Area Development, 860 Stuart Building, Seattle 1, Washington, (Ad page 106)

St. Petersburg Chamber of Commerce, Jack Bryan, Director-Industrial Development, 4th Street at 3rd Avenue, St. Petersburg, Florida. (Ad page 101)

The South Carolina National Bank, Chauncey W. Lever, Vice President, Columbia, South Carolina. (Ad page 1)

Southern Indiana Gas and Electric Company, L. A. Fleming, Director-Personnel and Public Relations, 20-24 N. W. Fourth Street, Evansville 3, Indiana. (Ad page 82)

Southern Pacific Company, L. E. Hoyte, Manager-Industrial Development, 65 Market Street, San Francisco, California. (Ad page 11)

State of Tennessee, Department of Conservation and Commerce, George L. Benedict, Jr., Assistant Commissioner, Cordell Hull Building, Nashville, Tennessee. (Ad page 103)

Texas Gas Transmission Corporation, Glover H. Cary, Manager-Industrial Development, 415 West Third Street, Owensboro, Kentucky. (Ad 2nd cover)

Union Electric Company, M. E. Skinner, Vice President and Director of Sales, 315 North Twelfth Boulevard, St. Louis, Missouri. (Ad pages 98 and 99)

Union Pacific Railroad, A. C. Ritter, General Manager of Properties, 1416 Dodge Street, Omaha, Nebraska. (Ad page 5)

State of Washington, Department of Commerce and Industrial Development, Sam Boddy, Director, General Administration Building, Olympia, Washington. (Ad page 97)

West Palm Beach Chamber of Commerce, Greg Marquez, 600 North Flagler Drive, West Palm Beach, Florida. (Ad page 4)

Wilson Industrial Council, George R. Long, Executive Director, P. O. Box 728, Wilson, North Carolina. (Ad page 15)

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BRIEFS

Eleven additional companies have recently purchased sites in Centex Industrial Park, a huge industrial tract in Elk Grove Village, Chicago suburb. Officials said that since sales in the park were begun less than three years ago, more than eight million square feet of land has been occupied with projects totaling $23 million in cost.

* * *

John B. Green has been appointed vice president of traffic and industrial development of the Midland Valley Railroad Group in Oklahoma. He succeeds W. A. Carpenter of Muskogee who has retired after more than 39 years of service with the rail firm. Another new appointment is that of L. H. Hammond to the position of assistant vice president of industrial development.

* * *

An advertising sign board program, believed to be the biggest ever attempted by a single industrial development organization in Wisconsin, is being carried out in Manitowoc County. Attractive 10 x 12 foot signs advertising the county as attractive to industry have been erected at strategic locations all over the county. Cost of the program will run about $4,000. Sites for the sign boards were donated by county farmers who will be honored at a special program in the future. Spearheading the program is the Manitowoc County Association for Industrial Development.

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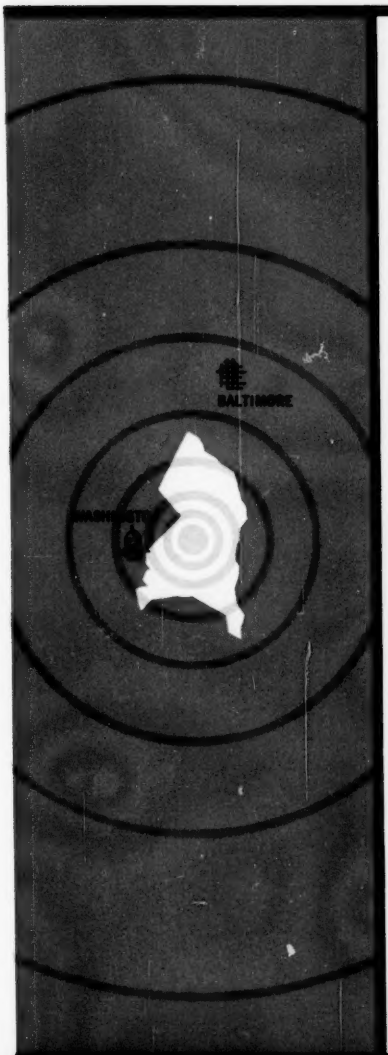

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March 10, 1960

Mr. T. Howard Duckett, Chairman
The Industrial Development Committee of
Prince Georges County, Maryland
Hyattsville, Maryland

Dear Mr. Duckett:

In any concerted effort to establish a particular geographic area as a prime industrial complex, the impetus must be supplied by a dedicated group. The Industrial Development Committee of Prince Georges County, Maryland, is to be commended for the fine job it is doing in this direction.

We here at ACF ELECTRONICS DIVISION have been impressed by the spirited cooperation and understanding of industrial problems displayed by the members of your committee, the Prince Georges County Commissioners and staff, the Maryland-National Capital Park and Planning Commission, the Prince Georges Chamber of Commerce, and others.

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Sincerely yours,

George B. Shaw

George B. Shaw
General Manager

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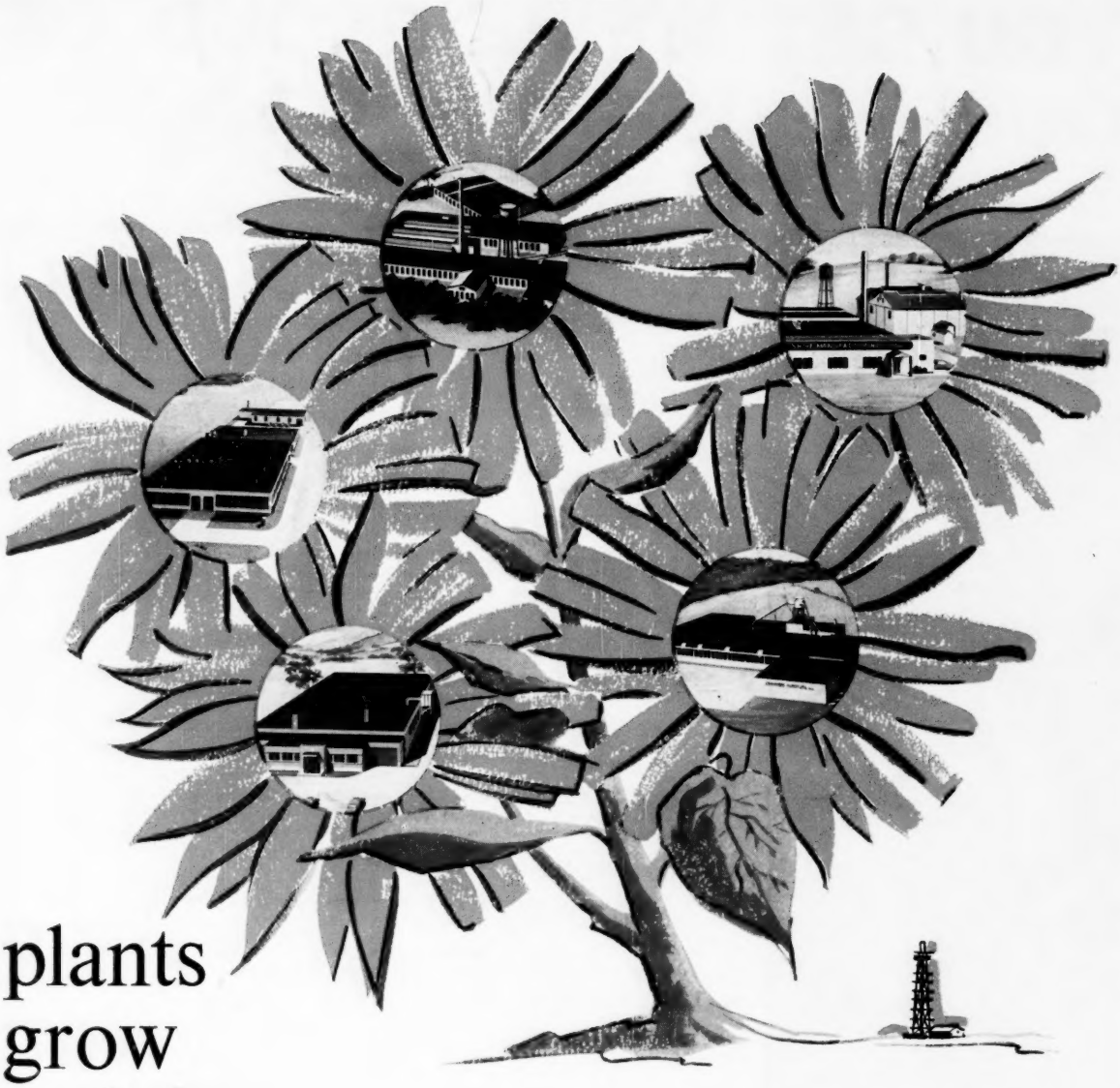

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